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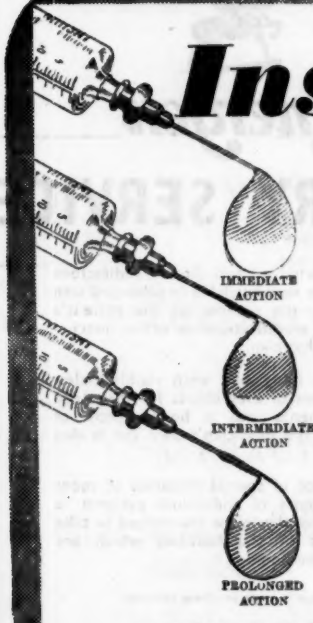

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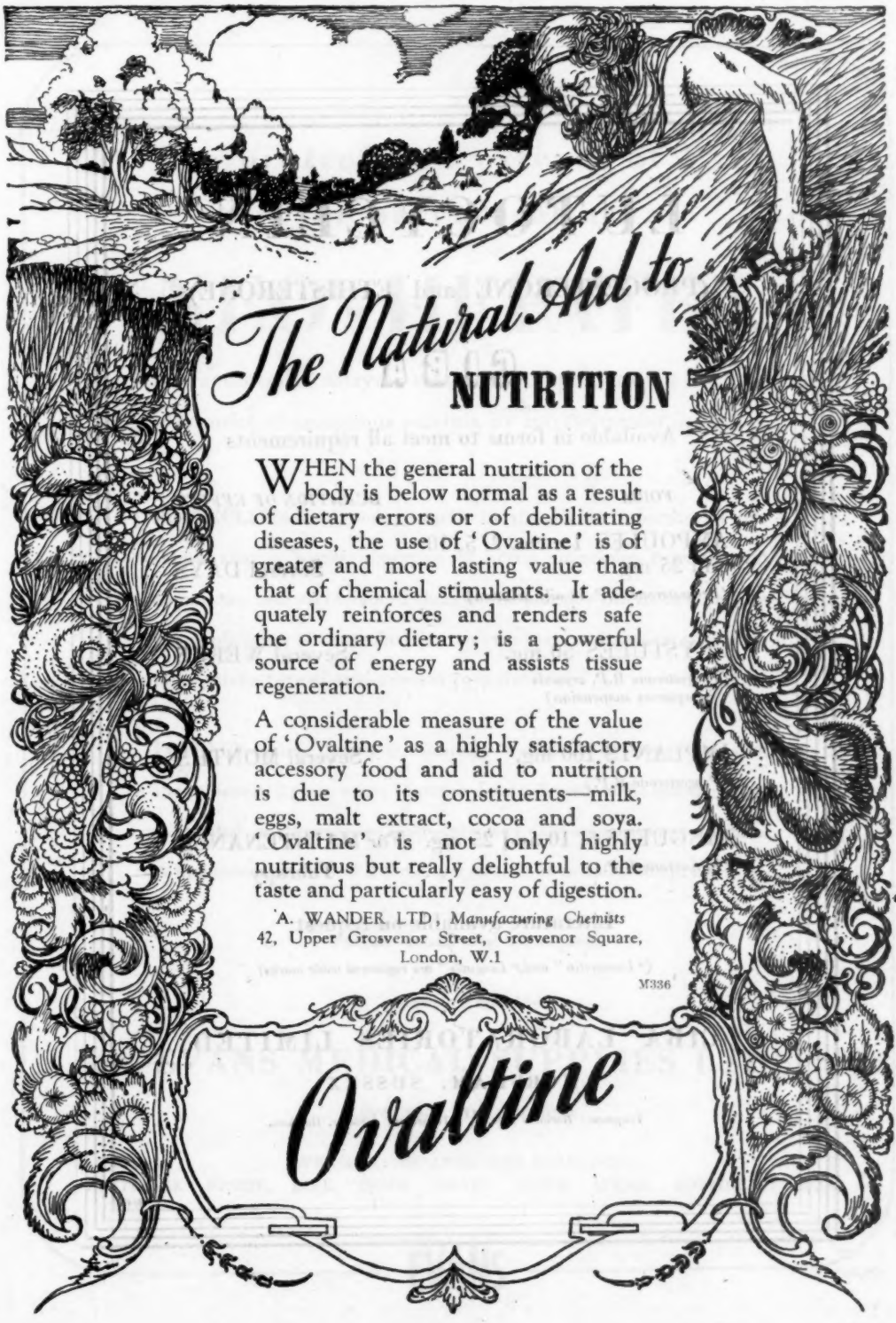
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WERTHEIM'S OPERATION IN RETROSPECT*

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AT the annual meeting of the British Medical Association, held at Leicester in 1905, Professor Wertheim, of Vienna, read a paper before the gynæcological section in which he introduced and described the operation which now goes by his name (Wertheim 1905).

He claimed as the result of it 40 five-year cures out of every 100 patients operated on, as against the 10 or less obtained by simple abdominal or vaginal total hysterectomy.

So great an advance naturally caused a sensation, and the more so because he asserted that his operation was applicable to just on 50% of all cases of carcinoma of the cervix instead of the 10–15% which were the limit of the lesser procedures.

Abdominal hysterectomy for the disease had been advocated by W. A. Freund as far back as 1878, but the real advance began in 1895, when Ries of Chicago proved by experiments on dogs and on the cadaver that a radical operation on the lines of Halsted's operation for cancer of the breast was perfectly feasible, and in 1896 Clark of Johns Hopkins University first performed it on a living woman. Clark's example was followed by Howard Kelly, while, quite independently in far away Australia, Thring of Sydney was trying the same thing.

Wertheim did not begin his long series till 1898, but to his courage and persistence belongs the credit of establishing the operation as one of the recognised procedures of surgery.

His paper, however, was received with considerable scepticism by the older British gynæcologists of that time, most of whom had not undergone that training in general surgery which renders the mind receptive to and capable of exploiting new ideas; but what chiefly stuck in their throats was the high mortality attached to the operation—30 deaths in the first 100 operations that Wertheim performed, though by the time he read his paper he had reduced the rate to 20%.

It was no use arguing that the only alternative at that time was to operate on 10 out of every 100 patients by one of the lesser operations, cure one or two, and let the rest perish; the minds of the pundits were made up—it was a horrible mortality, and that was that. And this criticism has ever since been a weapon in the hands of the opponents of surgery, though today, with surgeons skilled in it, the operative mortality is very much lower; indeed, my colleagues, Frank Cook and Charles Read have shown that in selected cases it is not more than 3%.

* * *

I was not present at this historic meeting, though I had gone up to Leicester to show certain exhibits at the pathological section; but of course I read Wertheim's paper, and I realised at once the wide vista which it opened. So revolutionary a procedure naturally appealed to the younger and (surgically) better-trained minds; and Cuthbert Lockyer, who was then attached to a small hospital at Plaistow, got Wertheim to go down there and demonstrate his operation, after which Lockyer himself began to perform it, being the first British surgeon to do so. Another of the younger men, Wallace, of Liverpool, by whose premature death surgery lost a great executant, followed suit soon after.

As regards myself, I decided to do the operation so soon as a suitable case came my way; and, since I had only the illustrations in Wertheim's article to guide me, I performed it several times in the post-mortem room at Middlesex Hospital.

In 1906 I opened the abdomen of a patient with advanced disease, only to find the growth irremovable; but early in 1907 I did so again, and that time completed the operation, though the patient died a few days afterwards. Later in the year I tried again, and achieved a successful result.

Comyns Berkeley, with whom at the time I was working in close collaboration, assisted me with all these three operations. At the end of 1907 he performed one himself successfully, with me as his assistant, and for the next seven years we always assisted one another.

In 1908 I joined the honorary staff of Middlesex Hospital, and this promotion greatly extended my field of action, for the hospital had had, for a hundred years, wards devoted to cancer, and in consequence it received a much greater number of cancer patients than any other institution in Great Britain.

RESULTS

By the middle of 1908 Berkeley and I were able to publish an interim report (Berkeley and Bonney 1908) on 18 cases of Wertheim's operation, with 3 deaths. The shortest operation took fifty-five minutes, and the longest two hours. By the end of the year we had performed it 30 times.

In 1913 we reported (Berkeley and Bonney 1913) 71 operations on a three-year cure basis, with an operative mortality of 22% and an operability-rate of 63%. The estimation of our operability-rate was then very easy, for Berkeley and I were the only surgeons performing the operation at Middlesex Hospital and Chelsea Hospital for Women, and all the cases of cancer of the cervix presenting themselves at the outpatient departments came to us.

Later on, as other surgeons began to do the operation and radiological therapy came into the field, it became impossible to disentangle those cases whose treatment was primarily determined by us from those in which it was determined by others, and in all our subsequent publications we assumed that our operability-rate remained at 63% on the good ground that our selection of cases had never varied, being founded simply on whether there appeared to be any chance at all of removing the growth.

Lest anyone think this an exaggerated estimate, I cite my figures for cases of carcinoma of the cervix seen by me in private practice. Between 1910 and 1929 I saw 140 such patients, and of these I operated on 113, an operability-rate of 80%.

* * *

The technique I evolved departed somewhat from that of Wertheim. To begin with, removal of the regional glands was a routine, whereas Wertheim did not touch them unless they were obviously involved. Further, instead of removing only sufficient vagina to form a cap over the cervix, I began by removing half, and later on the whole, of it, and as early as 1908 I had replaced the clumsy vaginal clamps that Wertheim used by the instrument which goes by my name.

Our criterion of operability—a possibility of removal and nothing else—necessarily produced a good many cases in which on opening the abdomen extirpation of the growth was found to be impossible because of gross involvement of the bladder or both ureters. One ureter

* Introductory address delivered at the Conference on Malignant Disease of the Female Pelvic Organs at Newcastle on April 1, 1949.

can be successfully resected and reimplanted in the bladder; but if bilateral reimplantation is decided on—and it requires a great deal of consideration—I think today that the colon should be chosen, though I have never done it myself.

In 1916, Berkeley and I published a joint series of 100 cases (Berkeley and Bonney 1916). Our operative mortality was 20%, and 39 of the patients were well five years after their operations. In this paper we classified our cases according to whether the regional glands removed at the operation were or were not carcinomatous, a method I have regularly followed since. Not only is it exact, being found on microscopical examination, but also at that time it served the useful purpose of proving that a proportion of the cases whose glands are involved can be saved by surgery. Some authorities had denied this.

The percentage of gland-involved to gland-free cases in a series is a general indication of the degree of the advancement of growth which the surgeon has tackled, but there is no fixed relation between the involvement of glands and the extent of the cervical growth. Generally speaking, of course, the more advanced the growth the greater the chance of involvement; but carcinomatosis of the glands can co-exist with a very small cervical growth, and conversely the glands are not infrequently found free in cases in which the growth in the cervix is very extensive, and post mortem in persons who have died of the disease.

In 1921 I recorded (Bonney 1921) the first 100 operations performed individually by me, with 20 deaths, 40 survivals for five years, and an absolute operative five-year achievement of 25%. And thereafter I published my personal results only, though Berkeley continued to do the operation as before, and by the time he retired he had performed it between 300 and 400 times. Unfortunately he neglected to keep in close touch with his patients, and lost contact with so many of them that his statistics were of much less value than they ought to have been. As far as they went, however, they showed that his results were substantially the same as mine.

By 1925 (Bonney 1925) I had done the operation 192 times, with results the same as those of four years previously, except that the general mortality had dropped to 16%; and by 1926 (Bonney 1926) I had done 214 operations, with the same outcome but a general mortality-rate of 15·8%.

In 1929, at the Royal Society of Medicine, I reported (Bonney 1929) 265 cases on the five-year basis with 40% cures, and 161 cases on the ten-year basis with 36% cures.

My experience had taught me, what I was the first to enunciate, that 10% of all recurrences occur between the fifth and tenth years (the latest either Berkeley or I have known being the eighth year), and that ten years' survival is 100% cure.

* * *

In that paper I exhaustively examined the comparability of radiological and surgical statistics, and showed that of the various methods of computation not one was impartial, because they contrasted dissimilar groups of cases. Some favoured irradiation and some surgery, but they were all alike in this.

I pointed out that the only accurate comparison was between the results of the pure radiologist and those of the surgeon who operates on a proportion of the cases presented to him and irradiates the remainder. The 100 patients presenting themselves at each man's clinic are substantially similar, and the number of five-year and ten-year cures that each achieves out of *his* 100 cases is the measure of the efficacy of the system of treatment he follows, and as such can be directly compared with the other man's results. And here let me beg radiologists to abandon the division of their cases into stages, for every surgeon who has experience of operating for the disease knows how often the preoperative opinion is found to be quite wrong when the abdomen is opened. These so-called stages introduce into the statistics an element of inaccuracy, and, what is perhaps as bad, make them tiresome and boring. All that matters is the number of patients seen, the number treated, and the number of five-year and ten-year survivals.

In 1930 I delivered a Hunterian lecture at the Royal College of Surgeons, wherein I reported 284 cases on the five-year basis, with an operative mortality of 16·5% and a cure-rate around 40%; and 181 cases on the ten-year basis with a cure-rate around 36%; I also described very fully the technique, dangers, and complications of the operation (Bonney 1930).

There are two methods of assessing the number of cures. In the first method all patients lost sight of or dying of other disease are reckoned as having died of carcinoma, whereas in the second method these cases are excluded from the calculation. I hold that the second method is the right one, but throughout all my communications on the subject I have made a practice of giving both estimates. The difference in the figures resulting from the two methods of computation is considerable when applied to ten-year results; for, as the average age of the patients is over fifty, a proportion of them, in ten years, will surely have died of some disease other than carcinoma, and the number lost sight of will be considerably greater than in a five-year series. The first method of computation, which is Continental in origin, was designed to prevent wilful falsification of results. Those who prefer it, with its obvious errors, must have a very poor opinion of the honesty of their fellow workers.

In 1931 I reported (Bonney 1931) 310 cases, and in 1932 (Bonney 1932) 339 cases with results almost identical with those I have given, and in 1935 the American Gynecological Society honoured me by an invitation to give an address on Wertheim's operation. In it I presented (Bonney 1935) 384 cases on the five-year basis with a cure-rate of 39% or 41%, according to the method of calculation, and 283 cases on the ten-year basis with a cure-rate of 29% or 33%.

In that paper I emphasised the fact that a large number of the so-called stage III cases (styled "inoperable") could be successfully operated on, and I was asked to substantiate my contention by actual demonstration. I was very willing, and so one afternoon at the Women's Hospital, New York, I operated on two stage-III cases chosen by my old friend Gray Ward and his hospital colleagues, and I completed both operations. One of the patients, who had malignant regional glands, died of recurrence some years later, but the other, whose glands were not involved, is alive and well today.

* * *

Finally, in 1941 I published (Bonney 1941) the results of 500 operations on the five-year basis, and 415 operations on the ten-year basis. The paper is so comparatively recent that I will only mention its main conclusions. For the 500 cases the five-year cure-rate was 40% or 43%, according to the method of calculation, and the operative death-rate 14%. For the 415 cases on the ten-year basis the cure-rate was 31% or 36%, according to the manner of computation, and the operative mortality slightly less than 14%.

Of the 500 operations, 300 of the patients were gland-free and 200 gland-involved, and the difference in the results obtained from the two groups was very marked. Thus, of the gland-free group on the five-year basis 53% or 58% were cured; and on the ten-year basis 42% or 49%; while of the gland-involved group only 22% or 23% were cured on the five-year basis and only

16% or 18% on the ten-year basis. There was a great difference too in the respective operative mortalities, that of the gland-free group being 10% and that of the gland-involved group 20%. It may be said, therefore, that gland-involvement doubles the risk of operative death, and more than halves the average chance of cure; but, on the other hand, it is to be remembered that all these gland-involved patients, left unoperated on, would have died of carcinoma, for the evidence shows that no method of irradiation at present known cures carcinomatous regional glands.

The absolute operative achievement is the number cured out of every 100 unselected patients seen. Reckoning my operability-rate as 63%, my achievement was 25% or 26% on the five-year basis, and 20% or 21% on the ten-year basis; or, to put it another way, surgery can effect 1 five-year cure out of every 4 unselected patients, and 1 ten-year cure (an absolute cure) out of every 5 unselected patients. This does not exhaust the cures that a surgeon can effect; for, besides the patients he operates on, he has a residuum—larger or smaller as his operability-rate is low or high—from which patients can be salvaged by irradiation.

This paper was my swan-song, so far as the statistics of Wertheim's operation are concerned; for, though I have performed it many times since I reached the 500 mark in 1936, I ceased to keep in routine touch with the subsequent patients, feeling that the addition of 100 cases to the series would shed no new light, and that, after labouring for twenty-nine years to keep in touch with the women I had operated on, I deserved a rest.

* * *

Looking back on the figures I have published at various times, I think one must be struck with their uniformity, for my five-year cure-rate for all cases has hovered monotonously around 40%, and my ten-year cure-rate around 35%. It would be strange if it was otherwise, for over all these years my standard of case selection has never varied and my technique has not changed in material details. The one exception to this uniformity is my operative mortality, which was 20% for my first 100 cases, 14% for the next 200 cases, and 11% for the last 200 cases, and it might be thought that this reduction would be reflected in the cure-rates. But it must be remembered that most of the operative deaths followed operations on patients with very advanced disease, only a few of whom would have figured as cures had they survived.

The figures I have given relate to patients operated on over a span of twenty-nine years, during the larger part of which time none of the accessories, adjuncts, and aids which surgeons now enjoy existed, and the last of them was operated on thirteen years ago. Further, they are the results of pure surgery, for I have not used irradiation either before or after the operations except in a few cases where, the extirpation having been virtually completed, I discovered a mass or nodule so firmly attached to the side wall of the pelvis that its removal was impossible. These patients were treated with X rays; but, despite the fact that the position of the target to be aimed at was accurately known, every one of them died.

There is much evidence of recent years that pre-operative irradiation is helpful, but even at the time when my series was finishing it was not convincing, and to have used it then would have vitiated results obtained by pure surgery. Those that I have obtained are very much the same as those of Wertheim himself, and the other surgeons—including from this country Comyns Berkeley and Fletcher Shaw—who have practised the operation on a large scale and published their results. Those opposed to Wertheim were not backward in hinting that his figures were untrustworthy, but time has proved them entirely honest.

I also have encountered some opposition for keeping the flag of surgery flying, and it has been assumed that I am an opponent of irradiation, which is untrue. What I have done in the past, and what I again do now, is to insist that there are certain cases of cancer of the cervix best treated by surgery, as there are others best treated by irradiation. The views I expressed in my Hunterian lecture in 1930 remain unchanged:

> "The truth of the matter probably is that in certain cases surgery, and in others radium, would give the best chance of cure, each case being a law unto itself in this respect, but our investigatory methods are too coarse and imperfect to enable us to discriminate accurately. This is the position at present, but how long it will continue remains to be seen, for the control of the forces of radioactivity is yet in its infancy, and the future may see the power capable of disrupting the very atom into its component parts, harnessed and directed to a degree only dreamed of today. We have, however, to deal with things as they are, not as they may be, and hence I deprecate as altogether premature the appeals which have been made to the younger gynæcological surgeons not to embark on the operative treatment of cancer of the cervix, but instead to take up radium therapy."

Since that was written 19 years ago radioactivity has been the means of greatly increasing our power of destroying life; but alas! not of saving it.

Among the group of cases which should be treated by surgery are those where the growth is refractory to irradiation, and it is of the utmost importance that some method be found by which refractoriness or vulnerability can be distinguished before any treatment is decided on. We must all welcome, therefore, the contribution which Glucksmann and Stanley Way (1948) have made towards an achievement, which, when fully realised, will constitute a major advance in our battle against carcinoma of the cervix.

The specific cure for cancer has not yet arrived—some substance or agent which, put into the body, will single out for death the cancer cell, and/or the factor which energises it, and nothing else. When that day comes, tribute will be paid to Blair Bell, whose work, though it evoked much hostility, largely by reason of his own magnificent egoism, was, I have no doubt of it, along the right path.

Till then, surgery and radiotherapy alike are makeshifts—a humbling thought and one which should discourage the acrimony which has crept into their rival claims.

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"... The so-called social sciences encourage students to talk endlessly about alleged social problems. They do not seem to equip students with a single social skill that is usable in ordinary human situations. Sociology is highly developed, but mainly as an exercise in the acquisition of scholarship. Students are taught to write books about each other's books. Of the psychology of normal adaptation, little is said, and, of sociology in the living instance, sociology of the intimate, nothing at all. Indeed, in respect of those social personal studies that are becoming more important year by year, no continuous and direct contact with the social facts is contrived for the student. He learns from books, spending endless hours in libraries; he reconsiders ancient formulæ, uncontrolled by the steady development of experimental skill; the equivalent of the clinic, or indeed of the laboratory, is still to seek."—ELTON MAYO, *Social Problems of an Industrial Civilization*. London, 1949.

EXCRETION OF CHLORIDE AND SODIUM AFTER SURGICAL OPERATIONS

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DURING observations made for another purpose it was noted that, for six days immediately after partial gastrectomy, the excretion of chloride in the urine was much reduced below the amount found before operation and at a later period after operation. By combining observations on urinary sodium and chloride excretion with those on nitrogen balance, it has been found that the period of reduced chloride excretion coincides with one of reduced sodium excretion and often with that disturbance of protein metabolism which Cuthbertson (1932) has called the "katabolic phase."

METHODS

From the time of admission, three to seven days before operation, until discharge, ten to twenty-three days after operation, the daily output of chloride in the urine and in gastric aspirations was measured (and expressed according to convention as sodium chloride). The method of Peters and Van Slyke (1932) was used. Sodium was determined by the uranyl zinc acetate method (Butler and Tuthill 1931), and simultaneously a nitrogen balance study was made.

In all, 27 patients and 4 healthy young male controls were studied: 1 patient underwent splanchnicectomy for hypertension, 1 lumbar sympathectomy for causalgia, 19 partial gastrectomy, 5 vagotomy and partial gastrectomy, and 1 gastrojejunostomy. In 20 of these patients an estimate was made of the sodium and chloride content of the food eaten (McCance and Widdowson 1946) and of the intravenous fluid administered in the early postoperative period. The remaining 7 patients were studied in more detail, the intake of salt being carefully measured. All the urine passed in the twenty-four hours from 8 A.M. to 8 A.M. was collected in a 5-litre jar which was suspended from the side of the bed and into which the patient emptied his urinal after use. The stools were collected for each period of twenty-four hours, and fluid aspirated from the stomach before and after operation was analysed.

RESULTS

Classification

For convenience of discussion the subjects are divided into five groups:

(1) Four controls were submitted to various dietary restrictions but not to surgical interference or to anæsthesia.

(2) Nine patients, of whom 5 received the routine postgastrectomy treatment of this unit, and the remaining 4 were submitted to vagotomy (1), gastrojejunostomy (1), lumbar sympathectomy (1), and splanchnicectomy (1). Gastric aspiration was not done in these cases.

(3) Four patients in the immediate postoperative period received intravenous infusions of an enzymic digest of casein ('Casydrol') in amounts which would yield as nearly as possible an intake of 11 g. of nitrogen a day.

(4) Seven patients during the postoperative katabolic phase received, initially by a jejunal tube and later by mouth, a mixture of whole milk, dried skimmed milk, and lactose, the total amount of milk mixture or mixture plus ordinary food being calculated to yield at least 70 g. of protein (11 g. of nitrogen) and 1700 calories a day.

(5) Seven patients were given, as nearly as possible, a constant intake of sodium and chloride throughout the preoperative and postoperative periods, partly by intravenous salt solution and partly by known amounts of salt in the diet.

In all these groups, except the control group, the urinary excretion of chloride after operation was depressed irrespective of the amount of salt given. The time of onset of the depression of urinary chloride excretion varied. Though in some cases a fall in amount began two or three days before operation, which might have been initially related to a reduction in appetite and in food consumption, and in a few the fall was delayed for one or two days after operation, in most cases the fall was abrupt on the day of operation. The depression lasted for five days after operation in 8 patients, for seven days in 7 patients, for eight days in 5 patients, for nine days in 2 patients, and for ten days in 1 patient; in 4 the exact duration was not determined. The total urinary chloride excretion fell below 1 g. a day for two or more consecutive days in 13 patients, and below 2 g. a day in 12 patients. There was no relationship between the time of onset, duration or degree of depression of urinary chloride excretion, and the type of postoperative treatment.

When, after partial gastrectomy, the intravenous intake of sodium chloride was compared with the excretion of chloride in the urine and the loss of chloride by gastric aspiration, it was found that there was retention or accumulation of chloride in the body though only modest quantities of saline (1 litre a day) had been infused. The accumulation of chloride lasted from five to seven days and was later followed by a period when the loss of chloride exceeded the intake.

Group 1—Controls

The two diets for the controls were really designed to clear up some points in relation to the katabolic phase of protein metabolism, and this accounts for their particular form. In each of the diets the nitrogen intake was the same and was based on that of a typical patient after partial gastrectomy. In group A the calorie intake was maintained at or near 2500 calories a day throughout the experiment. In group B the calorie intake was restricted as it usually was after operation, falling to 500 calories a day for the day of operation and the succeeding two days but thereafter rising as in a typical patient. Whereas in group B the salt intake was unrestricted, in group A food was provided which had been cooked without salt and salt was added according to taste, from a weighed daily supply, the unused portion of which was later weighed. During the three days of starvation, in group B salt intake was almost nil, whereas in group A it was maintained at 6–8 g. a day. The daily excretion of chloride varied according to the salt intake; the characteristic patterns which resulted in the two groups are shown in fig. 1. Thus the urinary excretion of chloride in these varieties of food restriction was not related to the protein intake and could be largely controlled by the consumption of salt by mouth. A typical result from a patient after partial gastrectomy on a protein and calorie intake similar to that of the group B controls is shown in fig. 2.

From the work of Benedict (1915) one would expect the urinary chloride excretion to take several days to fall to 1 g. a day or less in fasting people who were well nourished before the experiment began. This is what might have happened in the controls starved of calories and protein if their intake had not been resumed after three days' starvation. In the patients after operation, however, the urinary chloride excretion falls much more rapidly, suggesting that there is some factor causing this which is related to the operation and is additional to the starvation factor.

Group 2—Patients on Routine Ward Treatment

Of 9 patients in this group 5 underwent partial gastrectomy. After operation they were treated by continuous intravenous infusion of saline or glucose solution with

two-hourly gastric aspiration for periods up to four days according to individual indications, only small quantities of water or milk and water being given by mouth during this time. Thereafter the intake of food was gradually increased to 70 g. of protein and more than 1800 calories a day, this level being reached by from six to ten days. Of the other 4 patients 1 underwent splanchnicectomy, 1 lumbar sympathectomy, 1 vagotomy, and 1 gastrojejunostomy; in none of these cases was intravenous infusion or gastric aspiration used.

In all cases there was a depression of urinary chloride excretion after operation. This depression occurred in spite of the intravenous administration of more than 10 g. of salt a day in some cases. On the other hand, during the first three days after operation there might be a loss of chloride equivalent to .5–15 g. in the fluid aspirated from the stomach. It seemed curious that, whether or not chloride was lost by suction, the urinary chloride excretion was depressed to about the same degree. The following 3 cases have been chosen as representative of the various features of this group.

Case 1.—A man, aged 36. Diagnosis: hypertension. Operation: left splanchnicectomy. The total daily urinary chloride fell to 1·07 g. on the day of operation; it was 2·72 g. next day, and remained about 1 g. a day for another five days. There was no intravenous infusion or gastric aspiration. The period of increased nitrogen excretion coincided with that of depressed chloride excretion.

Case 2.—A man, aged 52. Diagnosis: chronic duodenal ulcer. Operation: gastrojejunostomy. The urinary chloride excretion was about 5 g. a day before operation; little urine was passed for twenty-four hours after operation, but thereafter the volume was good; chloride excretion only once exceeded 1 g. a day in the next five days, after which the amount rose to above 5 g. a day. No intravenous fluid was given. About 0·5 g. of chloride was removed in the gastric aspirations, which were stopped twenty-four hours after operation.

Case 3.—A man, aged 38 (fig. 2). Diagnosis: chronic duodenal ulcer. Operation: partial gastrectomy. Over 3 g. of chloride appeared in the urine on the day of operation and the next day, but thereafter for five days there was less than 1 g. a day, and for three more days less than 2 g. a day. Gastric aspiration was continued for four days, and large volumes of fluid were withdrawn, containing up to 7 g. of chloride on the last day. Intravenous infusion was continued until the fifth postoperative day, and by this means more chloride was given than was withdrawn by gastric aspiration.

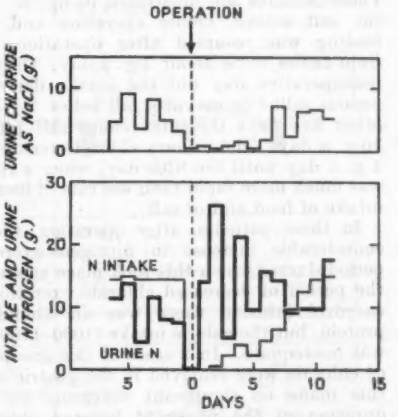

Fig. 2—Urinary chloride excretion and nitrogen intake and output, before and after partial gastrectomy for duodenal ulcer in case 3.

In all the cases the nitrogen balance was also studied. The postoperative increase in nitrogen excretion (which is a more striking and constant phenomenon than the negative nitrogen balance) coincided roughly with the period of decreased urinary chloride excretion. Whether this was a chance occurrence, or whether the two phenomena are related as part of a general metabolic disturbance, these observations were insufficient to decide. Direct proof of this relationship is very difficult, but indirect support might be obtained if it were found that the two phenomena were inseparable under different conditions.

Group 3—Intravenous Administration of Casein Hydrolysate

In this group the nitrogen intake immediately after operation was kept at a moderate level throughout by the intravenous infusion of a casein hydrolysate (casydrol). The casydrol infusion was maintained until food intake was restarted, and because of this the intake of chloride was maintained, being indeed greater in the five or six days after operation than in both the preoperative period and the subsequent postoperative period. In spite of this the excretion of chloride fell to the low levels observed in the cases of group 2, and it returned to about the preoperative level only after the usual period of from five to eight days. Indeed it was particularly striking that the urinary chloride excretion returned to the preoperative level at a time when the chloride intake was lowest because of the transition from intravenous infusion to oral feeding. This may be due in part to the known delay in excretion of salt given intravenously.

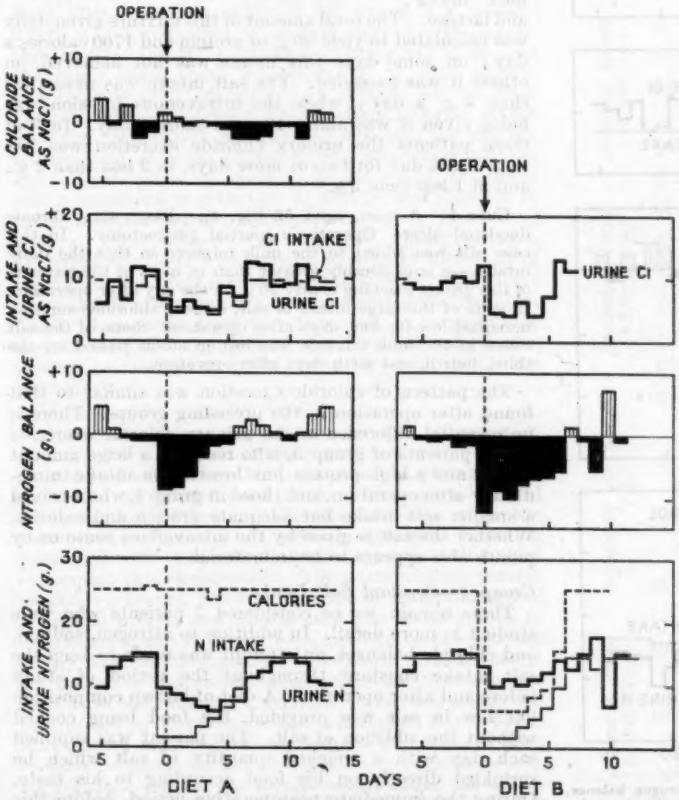

Fig. 1—Control group showing variation in urinary nitrogen and chloride excretion on the two types of diet. In this figure the "operation" is of course imaginary.

These features are illustrated in fig. 3. In this patient the salt intake, before operation and when ordinary feeding was resumed after operation, was estimated from tables to be about 7 g. a day. Only on the second postoperative day did the intake derived from intravenous saline or casydrol fall below 7 g. a day; on the other five days the intravenous salt intake was about 10 g. a day. The urinary chloride remained at less than 1 g. a day until the fifth day, when a rise began which was much more rapid than the rate of increase in the oral intake of food and of salt.

In these patients, after operation, there was also a considerable increase in nitrogen excretion, and the period during which this took place again coincided with the period of decreased chloride excretion. During the casydrol infusion there was an abundant intake of protein, but the calorie intake (1000–1100 calories a day) was inadequate. In 2 cases of this group large amounts of chloride were removed in the gastric aspirations, but this made no significant difference to the extent or duration of the phase of lowered chloride excretion. Further, the amounts lost in this way were far less than the amount of salt supplied intravenously as casydrol and as saline; hence in all cases there was a considerable retention of chloride in the first week after operation.

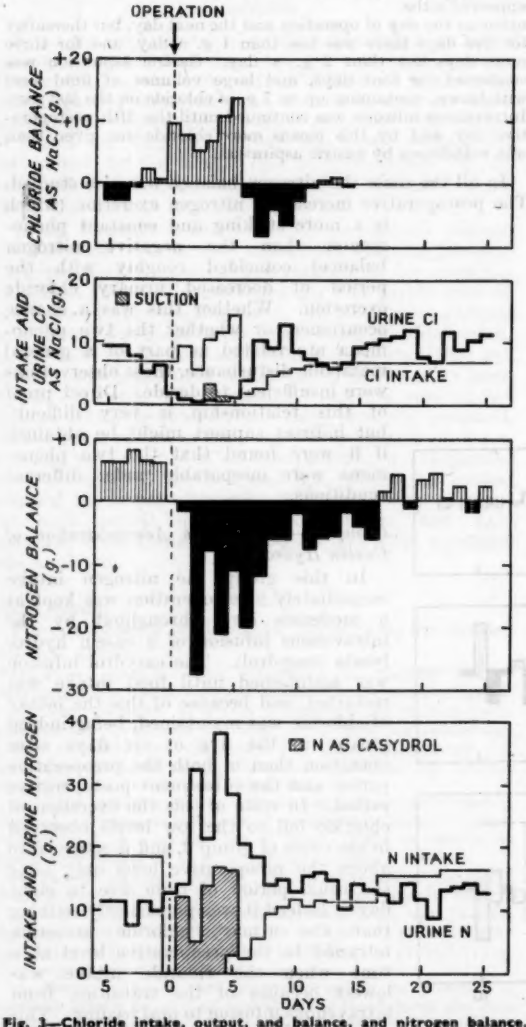

Fig. 3—Chloride intake, output, and balance, and nitrogen balance, intake, and output charts before and after partial gastrectomy for duodenal ulcer in a patient who was given intravenous hydrolysate for five days after operation. Negative nitrogen balance of 12·86 g. has been omitted on day of operation from nitrogen-balance graph.

Group 4—Milk Mixture

In this group there were 7 patients, who during the postoperative katabolic phase received, initially by a double-lumen tube inserted at operation into the distal limb of the jejunum and later by mouth, a mixture of whole milk, dried skimmed milk, and lactose. The total amount of this mixture given daily was calculated to yield 90 g. of protein and 1700 calories a day; on some days this intake was not achieved, on others it was exceeded. The salt intake was never less than 4 g. a day; while the intravenous infusion was being given it was about 10 g. or more a day. In 3 of these patients the urinary chloride excretion was less than 1 g. a day for two or more days, in 3 less than 2 g., and in 1 less than 3 g.

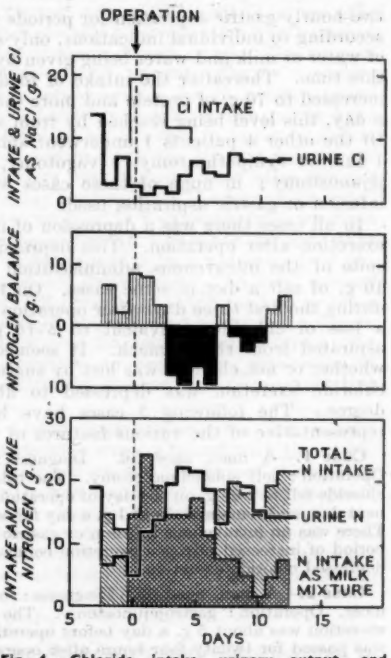

Fig. 4—Chloride intake, urinary output, and balance in case 4, who was given milk mixture after partial gastrectomy.

Case 4.—A man, aged 52 (fig. 4). Diagnosis: chronic duodenal ulcer. Operation: partial gastrectomy. In this case salt was added to the milk mixture so that the daily intake was considerably greater than in most of the patients of this group, reaching nearly 20 g. on the day after operation. In spite of this large intake of salt, urinary chloride excretion remained low for four days after operation. Some of the salt taken in the milk mixture was lost in stools passed on the third, fourth, and sixth days after operation.

The pattern of chloride excretion was similar to that found after operation in the preceding groups. There is no essential difference in the urinary chloride excretion in the patients of group 3, who received a large amount of salt and a high-protein but low-calorie intake immediately after operation, and those in group 4, who received a smaller salt intake but adequate protein and calories. Whether the salt is given by the intravenous route or by mouth also appears to be immaterial.

Group 5—Constant Salt Intake

There remain to be considered 7 patients who were studied in more detail. In addition to nitrogen, sodium, and chloride balances, an attempt was made to keep the salt intake constant throughout the period of study before and after operation. A diet of known composition but low in salt was provided, the food being cooked without the addition of salt. The patient was supplied each day with a weighed quantity of salt which he sprinkled directly on his food according to his taste. During the immediate postoperative period, before this diet was given and after intravenous saline had been discontinued, the requisite amount of salt was given by

mouth in the form of saline solution flavoured with orange-juice. An ample supply of distilled water was allowed, and the amount consumed was measured daily. Tea and other beverages were made only with distilled water from this daily allowance. In addition, in the patients of this group, the sodium and chloride contents of the stools were measured.

Five patients each exhibited a reduction in urinary excretion of sodium and chloride in the first seven or eight days after partial gastrectomy. The onset of this reduction was delayed until the second or third day in 2 patients. There was a small reduction in sodium and chloride intake in 4 patients for one, two, or three days, but this was not of the same order as the reduction in daily urinary output. In these patients there was considerable retention of both ions for eight days after operation, but retention of chloride exceeded that of sodium from the third to the seventh day. In 2 patients who were followed for a sufficiently long time, it was found that later this excess was excreted.

In 1 patient of this group potassium, phosphorus, and sulphur balances were also studied, but the results are somewhat equivocal, and further studies are being undertaken before the work is reported in detail.

Case 5.—A man, aged 43 (fig. 5). Diagnosis: chronic duodenal ulcer. Operation: partial gastrectomy. Salt intake was controlled before and after operation. Urinary chloride and sodium excretion were reduced from the day of operation. There was considerable retention of both chloride and sodium for seven days after operation, coinciding with the period of increased urinary nitrogen excretion and of negative nitrogen balance.

In 1 patient after vagotomy there was immediate retention of both sodium and chloride, though urinary chloride excretion was not depressed until more than five days after operation, when it fell below 2 g. a day. There was a reduction in sodium and chloride intake shortly after the fall in urinary chloride excretion; on the other hand, there was retention of both sodium and chloride after operation. In another patient after gastrectomy and vagotomy the sodium chloride intake unfortunately varied widely; nevertheless the urinary sodium and chloride excretion fell after operation in spite of intakes of up to 18 g. of salt a day, and there was a considerable retention of sodium and chloride in the immediate postoperative period.

In all these patients the increased urinary nitrogen excretion coincided with a reduced urinary excretion of sodium and chloride ions during the seven or eight days immediately after operations such as partial gastrectomy. These phenomena were not disturbed by considerable variations in the amounts of the intake of salt, water, protein, or calories, or in the routes by which these have been given.

DISCUSSION

The most obvious explanation for the reduction in urinary chloride excretion after operation would be lack of intake of salt during the usual period of postoperative starvation or reduced food intake. The coincidence of the reduction in urinary chloride excretion with the postoperative increase in urinary nitrogen excretion associated with the katabolic phase appears at first sight to support this explanation. The postoperative protein breakdown occurs, however, in spite of maintaining oral or jejunal protein and calorie intake at levels known to be adequate, and it is now recognised to be independent of the postoperative protein and calorie intake, though postoperative starvation does somewhat increase the severity of the katabolism. Similarly, when salt intake was maintained by intravenous and oral routes, it was found that urinary excretion of chloride was still reduced after

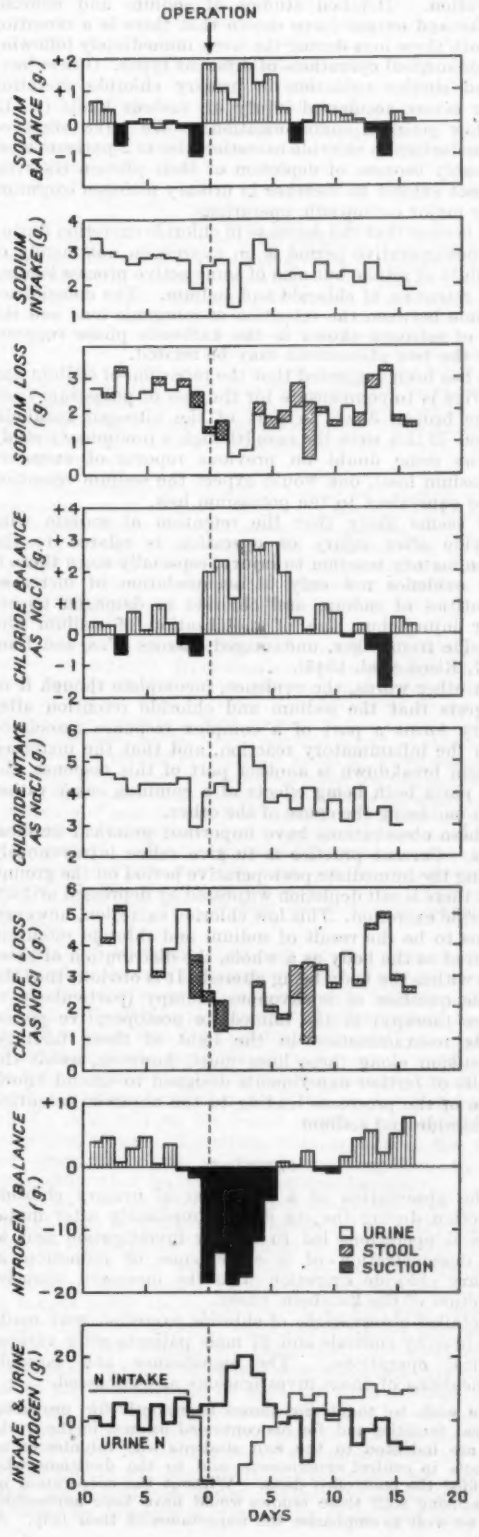

Fig. 5—Sodium, chloride, and nitrogen intake, output, and balance before and after partial gastrectomy for duodenal ulcer in case 5, whose intake of sodium and chloride was controlled.

operation. Detailed studies of sodium and chloride intake and output have shown that there is a retention of both these ions during the week immediately following major surgical operations of different types. Others have found similar reduction in urinary chloride excretion after severe accidental injury of various kinds (E. D. Barlow personal communication). We have observed the reduction in chloride excretion also in 2 patients who, probably because of depletion of their protein reserves, did not exhibit an increase in urinary nitrogen excretion after major orthopædic operations.

It is clear that the decrease in chloride excretion during the postoperative period is an expression not merely of a failure of intake but also of some active process leading to a retention of chloride and sodium. The coincidence in time between the retention of inorganic ions and the loss of nitrogen shown in the katabolic phase suggests that the two phenomena may be related.

It has been suggested that the retention of sodium and chlorine is to compensate for the loss of potassium from tissue broken down as part of the nitrogen katabolic phase. If this were the case (though a preliminary study throws some doubt on previous reports of excessive potassium loss), one would expect the sodium retention to be equivalent to the potassium loss.

It seems likely that the retention of sodium with chloride after injury or operation is related to the inflammatory reaction to injury, especially since there is now evidence not only of accumulation of increased quantities of sodium and chloride in damaged tissues after injury but also of mobilisation of sodium and chloride from other, undamaged, tissues (Fox and Baer 1947, Ricca et al. 1945).

In other words, the evidence, incomplete though it is, suggests that the sodium and chloride retention after injury forms a part of a complex response associated with the inflammatory reaction, and that the increased protein breakdown is another part of this response, the two parts both being effects of a common cause rather than one being the cause of the other.

These observations have important practical implications. Current practice is to give saline intravenously during the immediate postoperative period on the ground that there is salt depletion witnessed by depressed urinary chloride excretion. This low chloride excretion, however, seems to be the result of sodium and chloride retention referred to the body as a whole, the distribution of these ions within the body being altered. It is obvious that the whole question of intravenous therapy (particularly of saline therapy) in the immediate postoperative period needs re-examination in the light of these findings. Discussion along these lines must, however, await the results of further experiments designed to extend knowledge of the processes leading to the observed retention of chloride and sodium.

SUMMARY

The observation of a reduction in urinary chloride excretion during the six days immediately after major surgical operations led to further investigation and to the demonstration of a coincidence of reduction in urinary chloride excretion with the increased nitrogen excretion of the katabolic phase.

Detailed observations of chloride excretion were made in 4 healthy controls and 27 male patients after various surgical operations. The significance and possible applications of these investigations are discussed.

We wish to thank Sir James Learmonth for providing clinical facilities and for his continued interest in the work. We are indebted to the four students who volunteered as subjects in control experiments, and to the dietitians who provided the controlled diets. Without the coöperation of the nursing staff these studies would have been impossible, and we wish to emphasise the importance of their help. A grant was made to one of us (C. P. S.) by the Medical Research Council for technical assistance and materials; and one of us (A. W. W.) has held the Syme Surgical Fellowship of this university during the course of these studies.

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TREATMENT OF A STAMMERER IN THE SECONDARY STAGE OF STAMMERING*

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THE secondary stage of stammering is the stage when the stammerer has recognised the unpleasant aspect of his speech hesitancies and has therefore begun to fear stammering. This fear causes him to devise tricks whereby he can avoid, postpone, and initiate the speech attempt, and release himself from the block—tricks which quickly become habitual and automatic and are incorporated into the original spasm pattern. Here these bad reaction habits are called secondary symptoms of stammering, and the stammerer who has developed these habits is said to be a secondary stammerer.

The treatment I shall describe is based on the beliefs that (1) a secondary stammerer will never entirely free himself from the fear of certain words and situations, and (2) that a secondary stammerer who has developed habits of avoidance, postponement, and disguise as a reaction to his blocks will never break these habits by merely experiencing a period of free speech. Therefore, instead of working to achieve these periods of free speech by trying to distract the stammerer's attention from his speech, and preventing the occurrence of his blocks, the purpose of this treatment is to draw the stammerer's attention to his speech and train him to modify the form of his speech abnormality. In other words, the stammerer is trained not to avoid his blocks and fears but to work with them and control them. This can be achieved by setting up four goals.

FIRST GOAL

The first is to inculcate the principles of non-avoidance of speech situations and feared words. The secondary stage of stammering is characterised by word and situation fears which range from a slight uncertainty to a state of panic so extreme that the stammerer is incapable of any intelligent effort. Since fear always entails the expectation of unpleasantness, the stammerer wants to avoid that unpleasantness. The avoidance shows itself in many ways, but particularly in the substitution of another word for the feared word, and in the refusal to enter situations in which stammering is likely. It needs to be impressed on the stammerer that we never conquer fear by running away from it, we merely increase it; hence if he allows himself to avoid feared words and situations he will increase his fear of these particular words and situations, and of words and situations closely associated with them. In eliminating the avoidance reactions the stammerer must be trained first to become fully aware of his habits of avoidance by keeping note of situations and words which he did avoid, and secondly to reject these habits by developing a conscience which will penalise the tendency to avoid. It must be impressed

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on him that non-avoidance of his blocks and fears is a cardinal principle of this therapy, for it is only by learning to control them that he will gain any freedom from them.

SECOND GOAL

The second goal is to train the stammerer to recognise his own particular spasm patterns—i.e., he must know what devices of avoidance, postponement, and release characterise his particular type of stammering; for not until he recognises these devices in his speech will he be able to eliminate them from it. Those unacquainted with the phenomenon of stammering would imagine that a stammerer would know what he does as he gets blocked; but this is not so. Until the matter is consistently brought to his attention, the stammerer seldom has any idea what particular form his spasm pattern takes, even when the block has only just occurred.

The speech therapist must guide the stammerer in the study and analysis of his stammering symptoms—by drawing his attention to them when they occur and describing to him exactly what took place; by imitating them to him, and requiring him to imitate them; by making phonograph recordings of them; by encouraging him to watch himself in a mirror as he blocks; by giving him assignments to collect characteristic samples of his stammering behaviour; and finally by having him write out a detailed symptom analysis of his stammer.

THIRD GOAL

The third goal is to train the stammerer to use the expectancy of stammering in such a way as to change the form of the spasm to one that will have less abnormality and interruption. Experiment has shown that in stammering the preparatory sets determine the form of the stammering block, and are the cause of the stammerer's feeling of compulsion. Van Riper (1937) defines the term "preparatory set" as "a pre-stimulus neuromuscular adjustment which selects, determines, and controls the response to the expected stimulus." In any reaction-time experiment, as Van Riper points out, there are usually (1) a warning signal, which gives rise to (2) a neuromuscular adjustment, consisting of tiny rehearsal movements of appropriate muscle tensions which, when (3) the expected signal occurs, lead immediately and involuntarily to (4) the predetermined response. In any stammering block the above sequence is usually present. The stammerer feels that he has no control over this stammering performance, and that he is compelled to react in this abnormal way. "The reason for this feeling of compulsion lies in the power of the preparatory set to determine and control the response to a signal. The runner with a preparatory set to run at the command will run even though the starter cries 'Jump!'" (Van Riper 1937).

In experiments at the University of Iowa under Dr. Wendell Johnson, and at Western Michigan College of Education under Dr. Van Riper, it proved possible to produce various types of stammering reactions by teaching different preparatory sets, and in 83% of the stammerers with whom this procedure was attempted the experimenter was able to control the reaction by controlling the conscious preparatory set. Moreover, it was found that, as these preparatory sets were assumed time after time on the appearance of a feared word, they tended to become habitual and less conscious, until at length the new reaction often occurred without any voluntary assumption of the new preparatory set. The investigators therefore asked themselves whether it would not be possible to train the stammerer to assume a preparatory set that had little vocal abnormality and interruption to communication. This question can now be answered in the affirmative. Further experiments have shown that it is possible to train him to use the expectancy of stammering as a signal to reject his old spasm pattern and to assume a new preparatory set that has less abnormality and interruption.

The new preparatory set has three dominant features, but in training the stammerer to use this set it is advisable for him to work on only one feature at a time.

1. The speech attempt should be made from a state of articulatory quiescence rather than from a highly tensed musculature. The stammerer must learn that it is possible to make the speech attempt from a state of rest even though he is full of fear and certain he will stammer. To this end he is asked to select a feared word and a feared situation. It is then pointed out to him that in his old spasm pattern he would attempt to say the word from a highly tensed musculature, and he is told what particular area seems to be the most tense—the lips, the tongue, and so on. He is then asked to keep this focus of tension as relaxed as possible at the moment of the speech attempt. His efforts should be limited to reaching this one goal until he has succeeded in making the speech attempt from a state of rest in eight or nine much-feared words and situations. At this stage it is unimportant if he stammers after the speech attempt, but it is important that he start the feared word without preliminary tension, for by doing this he is destroying one of the most dominant features of the old preparatory set.

2. The air flow or voice flow has to be initiated simultaneously with the speech attempt. A secondary stammerer will almost always place his mouth into position for the first sound of a word before starting the vocalisation or air flow. He must be made aware of this preformation, and then trained to replace it by carefully initiating the air or voice flow with the speech attempt; and he must learn to do this under conditions of fear.

3. The speech attempt has to be made as a voluntary-movement sequence. In making a speech attempt on a feared word the stammerer almost always makes two mistakes: first, he sees the word in terms of its first sound alone; and secondly, he assumes a fixed position of the tongue, lips, or jaw, as the case may be, to say just that sound. A stammerer must prepare himself to make the initial or feared sounds of a word as a movement. This entails some training in perception—i.e., he must come to realise that words are made up of a sequence of sounds, and that his difficulty is not so much the making of a feared sound as the transition from that sound to the next. To affect this transition the mouth must be kept in motion, contacts must be light lest the movement be interrupted, and the succeeding sounds must be prepared for in mouth and mind so that the movement may have direction.

It will be apparent that each of the three features described in the new preparatory set is in essence merely a description of a speech attempt as a non-stammerer makes it. We all time the moment of speech attempt with air flow or voice flow; we produce sequential movements rather than static positions when we say a word; we use light contacts and fairly relaxed musculature as we speak. A stammerer also does this on his non-feared words; it is only on his feared words that he does all the wrong things. Therefore training him to use this new preparatory set is merely training him to do consciously what he usually does unconsciously.

It might be objected that if a stammerer had to go through such a rigmarole of preparation on every feared word he might prefer to stammer in his old way. This might be true if it were not for the fact that the new preparatory sets become habituated very quickly if they are taught under emotional conditions, and they lead to greatly improved fluency. After relatively few successful experiences the stammerer finds that, the moment a feared word is perceived, these new sets come into play, and to his own surprise he says the word without any difficulty. Having once experienced this he should be sent into normal speech situations to practise his new skills. When he finds himself stammering in his old way he should not stop, or start over again, but try to bring his symptoms under control by loosening his contacts, by bringing in the air or voice flow, and by

starting the movement into the second sound. Finally, after the word is spoken, he should cancel the failure by pausing deliberately and saying the word again with better preparation, and he should make a point of using it in another sentence as soon as possible. Thus every fear or block presents the stammerer with a chance of making some speech progress; and, provided he does not allow himself to block in his old way without doing anything about it, in a surprisingly short time the new preparatory sets replace the old ones as the stammerer's automatic reaction to fear of blocking. As soon as he realises that he can control his blocks without any obvious interruption in his speech he loses his fear of blocking; consequently the number of his blocks decrease and he begins to experience the periods of free speech he so much desires.

FOURTH GOAL

The final goal in this therapy is to help the stammerer to recognise and eliminate the mal-attitudes which he has developed as a result of his speech disability, and help him to adopt a more intelligent attitude towards it. These mal-attitudes of shame and embarrassment associated with the act of stammering are one of the outstanding characteristics of the secondary stammerer. They can be eradicated—at least to the point where they no longer handicap him—first by the use of catharsis (he must be encouraged to talk about his past and present speech experiences), secondly by making him aware of the part these mal-attitudes play in perpetuating and intensifying his handicap, and thirdly by teaching him to adopt a new attitude towards his speech. Instead of pretending that his speech is normal, as every stammerer is apt to do, he must be trained to adopt an attitude of unemotional admission and acceptance of his speech as a problem to be solved. The basic reasonableness of this objective attitude must always be emphasised, and the speech therapist must adopt a similar attitude towards his or her own differences and insecurities.

CONCLUSION

The therapy described here has been evolved during the last 15–20 years. It grew out of the belief that teaching a stammerer methods of avoiding and preventing fear and occurrence of stammering blocks (which was the principle underlying most therapies) was unsatisfactory. It was felt that the effects of suggestion and distraction are temporary, and that self-confidence is affected by too many factors to render it a permanent foundation for fear-free speech. This therapy is based on the belief that, since the stammerer is always likely to have fear, and consequent blocking, on certain words and in certain situations, his best chance of security lies in learning how to modify these blocks so that they occur with the minimum of interruption to communication. It is possible to disrupt and eradicate the stammerer's habitual devices to avoid, minimise, and release himself from his blocks—devices which constitute the greatest part of his abnormality—by training him to use the fear of stammering as a signal to adopt a new preparatory set which can prevent the occurrence of his old secondary symptoms. As soon as he realises that he can control his stammering blocks he loses his fear of stammering, and consequently the duration, severity, and number of his blocks decrease. Thus in this therapy fluency and release from fear are the by-products of *controlled* stammering rather than the results of *avoided* stammering.

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FACTORS INFLUENCING THE MAINTENANCE OF ANTITOXIC IMMUNITY

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RECENT work suggests that it should be possible, with very few injections, so to immunise children at an early age that no further injection would be necessary to maintain adequate protection against diphtheria for the rest of their lives. We have already shown (Barr and Glenny 1947) that hyperimmunised horses continue the production of antitoxin long after injections have ceased, and after a lapse of time maintain a constant level of antitoxin for 12–18 months, this level usually being about a tenth of the value at the end of immunisation. We also showed that guineapigs receiving only two injections of diphtheria formol toxoid gave the usual secondary response followed by a rapid loss of antitoxin, and that after 2 or 3 months the antitoxic titre rose again slowly in the absence of further injections, increasing up to the 6th month; this rise was termed the "delayed response."

We published curves showing that the response to 1 Lf dose of alum-precipitated toxoid (A.P.T.) repeated after 4 weeks was more than double that to 2 Lf doses of a good quality formol toxoid repeated after 4 weeks, when the comparison was made on values 10 days after the second injection; 6 months after this injection, however, the mean level of antitoxin in the A.P.T. guineapigs was lower than that in the animals which had been given toxoid. These results were obtained from many hundreds of guineapigs, but the mean values were those from a dwindling population owing to some deaths during the 6 months' observation.

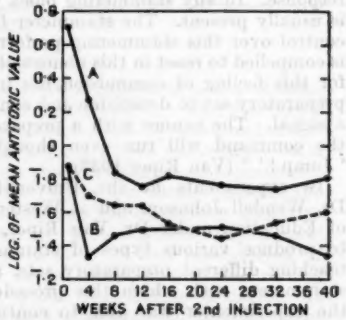
Further work has now been done in following the levels of antitoxin in guineapigs of easily distinguished colours, results being used only from those animals which survived for the duration of the experiment, 10 months.

Three groups of easily distinguishable guineapigs were injected as follows:

Group A received two injections, each of 1 Lf dose of A.P.T. at an interval of 4 weeks.

Group B received two injections, each of 2 Lf doses of toxoid at an interval of 4 weeks.

Group C received two injections, each of 2 Lf doses of the same toxoid at an interval of 6 weeks.



Logs of geometric means of levels of diphtheria antitoxin in guineapigs bled at different times during 40 weeks after second of two injections: A, 1 Lf of A.P.T. at intervals of 4 weeks; B, 2 Lf of toxoid at intervals of 4 weeks; C, 2 Lf of toxoid at intervals of 6 weeks.

Blood samples were taken 10 days, 1 month, 2, 3, 4, 6, 8, and 10 months after the second injection, and the individual sera titrated for antitoxin. The geometric means of the values of animals surviving the 10 months were calculated and are plotted in the accompanying figure.

Curve A (A.P.T.) closely resembles curve 1 (Barr and Glenny 1947), which showed the average results of tests made on many batches of A.P.T. over several years.

In our experience the antigenic efficiency of different batches of A.P.T. is remarkably constant, unless minimal doses are used in the test. In curve A the original loss in the first 8 weeks is followed by 8 months with little change: curve 1 showed a slightly smaller loss in the first 8 weeks, followed by a slow fall from 8 to 24 weeks. Curve B does not show so big a delayed response as curve 2 (Barr and Glenny 1947), and this is followed by a fall in value from the 4th to the 10th month, when the mean value was equal to that a month after the injection. Curve C (6 weeks between injections) shows only a gradual loss until the 6th month, after which the curve rises to the 10th month. A comparable experiment was not done in 1947, and this result, showing so pronounced an influence of the interval between injections, needs confirmation.

The antitoxic value in all A.P.T. guineapigs was lower at 8 weeks than at 4, and ten out of eleven values remained lower until after the 32nd week; at 10 months three were the same as at 4 weeks, and eight were lower. Compared with the titre at 8 weeks, five guineapigs at some later time showed a higher titre, but on no occasion was the number with a higher titre greater than the number with a lower titre.

From 12 to 24 weeks none of the nine toxoid animals (group B) had a lower titre, and in at least three the titres were higher than at 4 weeks, and in group C five out of nine had increased in value from the 24th to the 40th week. The percentage amounts of antitoxin present

TABLE I—THE AMOUNT OF DIPHTHERIA ANTITOXIN REMAINING AT DIFFERENT INTERVALS OF TIME AFTER INJECTION, EXPRESSED AS A PERCENTAGE OF THE AMOUNT PRESENT 10 DAYS AFTER INJECTION

Weeks after injection	Group A	Group B	Group C
4	38·6	28·8	77·4
8	13·6	39·4	59·2
12	11·9	42·7	59·2
16	13·7	46·2	46·5
24	11·9	42·7	38·9
32	11·0	39·4	45·0
40	12·8	28·8	54·0

Group A, guineapigs injected twice with A.P.T. at an interval of 4 weeks.
Group B, guineapigs injected twice with toxoid at an interval of 4 weeks.
Group C, guineapigs injected twice with toxoid at an interval of 6 weeks.

at each stage, in terms of the values at 10 days, are recorded in table I, the geometric means being used in calculation. The percentages remaining after 10 months were respectively 12·8%, 28·8%, and 54% for groups A, B, and C. The greatest amount present between 8 and 40 weeks in the A.P.T. group was 13·7%, and the smallest amounts in the toxoid groups 28·8% and 38·9%. It should be noted, however, that group A had apparently reached a fairly permanent level, whereas the values in group B were falling and in group C rising.

Thus two doses of A.P.T. produce far more antitoxin than do two doses of toxoid at the peak of the secondary response, but the rate of loss is much greater after A.P.T. and the delayed response is negligible.

INFLUENCE OF MATERIAL USED IN SECOND INJECTION

Further experiments, in horses, suggest that the nature of the material used for the second injection determines the rate of loss of antitoxin. In one experiment six horses were used which already had some basal immunity as a result of several injections of diphtheria A.P.T. given over 1–2 years. The last injection was given 44 weeks before the start of the experiment. Three of these horses were given 5 ml. of diphtheria toxoid followed 4 months later by 5 ml. of A.P.T.; the remaining three horses received these antigens in the reverse order. The response and rate of loss of antitoxin

TABLE II—RESULTS OF INJECTION INTO 3 BASALLY IMMUNE HORSES OF 5 ML. OF DIPHTHERIA TOXOID FOLLOWED 16 WEEKS LATER BY 5 ML. OF A.P.T., AND INTO 3 HORSES WITH THE ORDER OF ANTIGENS REVERSED

Horse no.	First injection	Level of antitoxin (units per ml.)			Percentage remaining after 16 weeks	Second injection	Level of antitoxin (units per ml.)		Percentage remaining after 16 weeks
		Before injection	At peak	After 16 weeks			At peak	After 16 weeks	
1	Toxoid	2·6	55·0	12·8	23·3	A.P.T.	41·3	16·3	39·5
2	,,	0·65	12·5	4·2	33·6	,,	15·0	4·3	28·7
3	,,	0·60	11·7	4·0	34·2	,,	15·6	4·7	30·1
	Geometric mean		20·0	6·0	29·9		21·3	6·9	32·4
4	A.P.T.	0·33	15·3	0·93	6·1	Toxoid	10·4	6·4	61·6
5	,,	0·75	9·5	1·3	13·7	,,	13·5	5·8	43·0
6	,,	2·0	63·3	9·0	14·2	,,	70·0	17·5	25·0
	Geometric mean		21·0	2·2	10·6		21·4	8·7	40·5

were measured in each case, and the results are given in table II. The responses to toxoid and to A.P.T. were the same, as judged by the geometric mean of the values, which were, however, much scattered. After the first of these injections the loss after 16 weeks was considerably greater in the A.P.T. group, the amount remaining after toxoid being nearly three times that remaining after A.P.T. Slightly more antitoxin remained in the same horses after the second injection of A.P.T. than after the first of toxoid, but nearly four times as much after the second injection of toxoid than after the first injection of A.P.T. The rate of loss after the second injection was less than that after the first, because active production was greater 16 weeks after the last injection, especially in those horses given toxoid, than 44 weeks after the last injection of the earlier treatment.

Further results in support of these findings were obtained in another experiment, in which four horses with basal immunity to both antigens were injected with diphtheria toxoid and tetanus A.P.T. at the same time but at different sites; two other such horses received tetanus toxoid and diphtheria A.P.T. Table III shows the peak response of the horses and the percentage amount of antitoxin remaining 16 weeks after the injections. It will be seen that the loss of tetanus antitoxin was greater than that of diphtheria antitoxin in all the first four horses, there being 2·17–4·23 (average 2·92) times as much diphtheria antitoxin as tetanus

TABLE III—RESULTS OF INJECTION OF DIPHTHERIA TOXOID AND TETANUS A.P.T. OR DIPHTHERIA A.P.T. AND TETANUS TOXOID INTO HORSES WITH BASAL IMMUNITY TO BOTH ANTIGENS

Horse no.	Antigen		Level of antitoxin (units per ml.)				Percentage remaining at 16 weeks		Ratio of remaining diphtheria antitoxin to remaining tetanus antitoxin
			Diphtheria		Tetanus				
	Diphtheria	Tetanus	Before injection	At peak	Before injection	At peak	Diph.	Tet.	
7	Toxoid	A.P.T.	3·9	30·0	10·0	65·0	45·0	20·8	2·17
8	,,	,,	1·55	7·5	5·25	65·0	27·6	10·7	2·58
9	,,	,,	1·8	34·7	1·0	40·0	28·8	6·8	4·23
10	,,	,,	0·4	24·0	<0·1	15·0	36·1	13·3	2·71
11	A.P.T.	Toxoid	0·9	5·5	0·2	20·0	30·0	21·3	1·41
12	,,	,,	0·08	8·4	0·2	62·0	10·0	10·5	0·95

antitoxin remaining. In the two other horses receiving diphtheria A.P.T. and tetanus toxoid the corresponding figures were much lower—1·41 and 0·95 (average 1·13). It should be noted, however, that these horses had received one more earlier injection of diphtheria than tetanus antigen, to establish basal immunity.

We have found that the levels of antitoxin in horses hyperimmunised against diphtheria or tetanus remain, after an initial fall, constant 2 or 3 years after the last specific stimulus was given, and occasionally antitoxic values increase. Two horses from which 8 litres of blood was taken each week for 26 weeks after injections had ceased increased their level of antitoxin, one by 52% and the other by 67%, during the following 3 months when bleedings had been stopped. There appears, therefore, to be convincing evidence that active production of antitoxin continues long after stimulation has ceased, and it seems probable that such production may continue throughout life if suitable stimulation has been given initially. Any theory of production of antitoxin must therefore explain continued production years after any specific stimulation. Such theories must also explain the speed at which antitoxin is formed after a secondary stimulus. For example, the level of antitoxin in a horse increased by 24 units per ml. from the 6th to the 7th day after an injection of 250 Lf of diphtheria toxoid. The amount of blood in the horse being assumed to be 30 litres, a conservative estimate, the total production was 720,000 units of antitoxin —i.e., for each Lf of toxoid 2880 units of antitoxin was produced in 24 hours, an average of 1 unit every 30 seconds; in 72 hours from the 4th to the 7th day after injection the average rate of increase was 1 unit of antitoxin per minute for every Lf of toxoid injected.

PRODUCTION OF ANTITOXIN

The most generally accepted theory of production of antitoxin is that antibodies are molecules of globulin which in the course of their synthesis have been specially modified by antigen (see Burnet et al. 1941). Cannon (1942), in a review on antibodies and protein reserves, states: "It is difficult to avoid the conclusion that at least some molecules of antigen, by persisting within the antibody-producing cells, can serve later as patterns for the synthesis of fresh antibody-globulin." It is difficult to imagine 20% or more of the antigen remaining intact for several years, during which time continual impressions are made upon the new globulin, or that each molecule of antigen can impress its pattern upon a molecule of globulin once every 30 seconds for 24 hours, or maintain half this rate for 3 days. We therefore suggest that molecules of antigen do not persist as patterns, but that there is multiplication of antitoxin-producing cells or of components within the cells. Either some structure resembling the antigen would be reproduced, or else cells that had built up antitoxic globulin in contact with the original antigen reproduce other cells which then continue to synthesise antitoxic globulin without the need of the original pattern. Pauling's (1940) theory of the folding of a polypeptide chain against the antigen needs considerable modification and expansion. Burnet et al. (1941) have shown that there is a logarithmic phase of antitoxic production and suggested the multiplication of some entity concerned with the production of antibody.

Since McMaster and Hudack (1935) demonstrated the formation of agglutinins by lymph-nodes many other workers have confirmed the rôle of lymphocytes. Ehrich and Harris (1942) worked with agglutinin and hæmolysin, and our colleagues Oakley, Warrack, and Batty (1949) with diphtheria and tetanus toxoids. The theory of reproduction would explain the latent period following a secondary stimulus; if the antigen-bearing antitoxin-producing cells (probably lymphocytes) doubled in number every 8 hours, the possible rate of production of antitoxin would increase five hundred times in 3 days. One other fact which might fit in with this theory of reproduction is that the logarithms of levels of antitoxin reached in some animals after a secondary stimulus lie on a smooth distribution-curve. The experiments recorded here suggest that, when A.P.T. is given, the antigen-bearing cells eventually die off earlier than those bearing plain toxoid.

PLANNING OF LIFELONG IMMUNISATION

The results suggest that it should be possible to lay down a course of immunisation for children that would ensure lifelong immunity. Such a course might consist of two injections of A.P.T. followed at some later date by a boosting dose of toxoid. Once basal immunity has been established, any subsequent injection should not only boost the level of antitoxin but also induce delayed responses to maintain an adequate level. We suggest that at least two injections of A.P.T. should be given to ensure good basal immunity even among those refractory to immunisation.

We hesitate at present to suggest that purified rather than crude toxoid should be used for booster doses to maintain immunity, because doubt is sometimes expressed as to whether diphtheria antitoxin is as efficacious as it was many years ago, before concentration and purification removed most of the euglobulin and some of the associated pseudoglobulin, which would contain any antibacterial substances or other antibodies. Similarly it is possible that purification of toxoid may remove the corresponding antigens which are precipitated by alum from crude toxoid, and thus also included in A.P.T. We suggest that a great deal of work is necessary to determine the conditions under which our work in animals can be transferred to the human field; for instance, only large-scale field experience can justify a departure from the present use of A.P.T., which when carefully prepared and used has given consistently satisfactory results for some years. Improvement is possible and must be continually aimed at, but caution is also needed. Possibly A.P.T. may induce so much antibacterial immunity (assuming this is needed) that subsequent injections are needed only to maintain a certain level of antitoxin; if that is so, purified toxoid or preparations therefrom could be used for subsequent injections. Possibly also Holt's (1947) use of optimal amounts of aluminium phosphate as carrier could be applied to toxoid from which none of the diphtheria bacillary substances have been removed. Only protracted trials can show whether antigens other than specific toxoid and desirable for prophylaxis have been removed in the process of purification.

SUGGESTED RESEARCH

The time is ripe for large-scale investigations, involving coöperation between laboratories, hospitals, and medical officers of health. Students at teaching hospitals could be encouraged to volunteer for a long-term experiment involving bleeding several times during their course. The majority would provide information about the best prophylactic to use as a secondary stimulus for the production of permanent antitoxin, and a minority could be used to work out the optimum interval between the production of basal immunity and subsequent boosting dose. At the same time much work should be done on children, though this would be somewhat limited by the fewer and smaller bleedings. If the work on children were done on a sufficiently large scale and their later history followed, invaluable information would be obtained as to whether the level of antitoxin alone is sufficient to protect against diphtheria.

SUMMARY

Production of antitoxin continues for months or years after the last injection of antigen.

It is suggested that cells bearing antigen must multiply, as patterns by which new antitoxic globulin is formed.

It should be possible to devise a course of immunisation for children which would confer lifelong immunity.

Levels of antitoxin in both guineapigs and horses are maintained better if the secondary stimulus is toxoid rather than alum-precipitated toxoid (A.P.T.).

Large-scale experiments on volunteers are needed to test the efficiency of different methods of immunisation. It is suggested that medical students would be useful subjects for observation for five years.

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INTESTINAL RUPTURE FOLLOWING NON-PENETRATING INJURY

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Aristotle said: "A slight blow will cause rupture of the intestine without injury to the skin." Since Aristotle's time about 1500 instances of similar injuries have been published: 1313 collected by Counseller and McCormack (1935); 163 by Poer and Woliver (1942); 2 by O'Callaghan (1942); 13 by Kelly (1943); 5 by Bunch (1944); 4 by Hunt and Bowden (1944); 4 by Metheny (1944); and 18 by Ficarra (1944). Of these recorded cases by far the greater number have resulted from comparatively violent causes—traffic accidents, and kicks in the belly during fights, or football. Some were due to ill-judged hernial taxis, and others followed falls, usually of ill or aged people.

The fatality-rate for such injuries was, and is, appalling. Curtis (1887) found 100% mortality in 116 patients. Gage (1902) stated it as 80% and wisely said: "Operate and operate early should be the rule whenever an intestinal rupture is suspected.". Counseller and McCormack (1935), reviewing all the available records, calculated the fatality-rate at 73·4%. Poer and Woliver (1942) say it was 61·3% of 163 persons. In the latest series described the rates have been 56% (Ficarra 1944), 50% (Metheny 1944), 33% (Packer 1939), 40% (Bunch 1944), and 69% (Kelly 1943). The explanation of these figures must be sought in the factors which lead to late diagnosis; in the deceptive integrity of the abdominal wall; in the delusive calm, or latent period, which often follows injury; and, in some instances, to the comparative triviality of the blow.

The regions of the bowel most commonly injured are said to be those which are fixed by peritoneum, such as the third part of the duodenum, and the portion near the ligament of Treitz; and those which may most easily be compressed against bony promontories, such as the ileum proximal to the ileocæcal valve where the vertebral column is nearest the anterior wall. But to these anatomical considerations must be added an essential element: the abdomen must be taken by surprise, the blow unexpected, and the muscles relaxed and unguarded.

Zachary Cope (1914) pointed out that after such a blow, when rupture has taken place, a reflex inhibition of peristalsis may last long enough for a plastic exudate of lymph to seal off the rent. After the patient has recovered from the primary shock, or stimulates peristalsis anew by taking food, leakage and consequent peritoneal symptoms will occur. This is the explanation of that "delusive calm" which so often deceives the surgeon and delays intervention.

After such accidents there may be no superficial wound of the abdomen. At first there may be no rigidity, local or general. Leucocytosis and rectal tenderness are late signs—often too late. When much leakage has taken place, gas is often seen below the diaphragm if the patient is radiographed in the erect position; but, on the other hand, such gas may be trapped below the transverse mesocolon in which case radiography is not a safe guide. An abdomen completely silent on auscultation, the presence of "release" pain, or an area of persistent local rigidity which begins to extend justifies immediate laparotomy.

CASE-REPORT

The following history includes all the essential ingredients of one of these injuries, and the patient was under my observation from the moment the blow was struck until his recovery.

A young airman of good physique, began to bat in a unit cricket match at 5 P.M. The third ball of the over did not seem to be particularly fast but broke to leg, glanced up, and struck the batsman just below his umbilicus. He dropped the bat, clasped his belly, and sat down. By the time I reached the crease he was up again and said that he was "just winded for a moment." He was not given out, continued to bat, and made ten runs without mishap. At the end of his innings I saw him again, and this time examined his abdomen. He felt perfectly well but "a bit bruised" where he had been hit. No abrasion or bruise was visible, and there was no local or general rigidity, though he was tender over a point some 2 in. below and to the left of his navel. He left me to have his supper.

At 7 P.M., after a meal of tea and rissoles, he was attacked by burning abdominal pain, reported sick, and was admitted to hospital. On examination he was not shocked and had not vomited. There was local rigidity in the left lower abdominal quadrant, local tenderness, and "release" pain. Peristalsis could be heard on auscultation. I decided however to operate, and opened his abdomen (about three-quarters of an hour later) through a subumbilical paramedian incision. Free fluid was not found, but on the antimesenteric surface of the ileum, some 18 in. from the ileocæcal valve, was a patch of peritoneal soiling round a longitudinal rent 1 in. long. This was repaired with a two-layered Lembert stitch, and the abdomen was closed without drainage. The patient made an uneventful recovery.

COMMENTS

Here are illustrated the apparently trivial but unexpected abdominal blow; the absence of external wounding; the latent period, ended by taking food; and followed by early, but not quite unequivocal, signs of a ruptured bowel. The moral in such event must be that a blow on the abdomen should be watched with no less attention than is a blow on the head; and on reasonable suspicion of perforation the belly should unhesitatingly be explored.

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GYNÆCOMASTIA DURING TREATMENT WITH AMPHETAMINE

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AMPHETAMINE sulphate is now so extensively used that it seems advisable to report the occurrence of gynæcomastia and other apparently œstrogenic effects during therapy with this drug.

Amphetamine sulphate has been recommended for a wide diversity of conditions, including depressive states, fatigue, epilepsy, narcolepsy, certain behaviour disorders of children, dysmenorrhœa, enuresis, migraine, and obesity. The manufacturers of one preparation of amphetamine sulphate report that more than 72,000,000 tablets were supplied to the Services during the 1939–45 war.

Gynæcomastia is defined as excessive size of the male mammary glands. It is usually divided into true and false types. No biopsy was performed in our cases, but the clinical findings pointed to true gynæcomastia—that is, enlargement of the male breast due to hyperplasia of the rudimentary mammary ducts and periductal connective tissue.

After two or three men patients had complained of bilateral slightly tender swelling of their breasts while they were taking amphetamine sulphate, we asked all male patients under treatment with this drug whether they had noted any enlargement of their breasts. A surprising number admitted that they had but said they had not revealed it until directly questioned because it did not seem relevant to the condition for which they were being treated.

ILLUSTRATIVE CASES

Case 1.—A boy, aged 17, who had had enuresis since the age of 9 years, was treated with amphetamine sulphate in view of heavy sleep, though emotional factors appeared responsible for the onset of the symptom. The enuresis completely cleared. There were no signs of overdosage of amphetamine sulphate.

After seven weeks the patient, in response to direct questioning, reported painless swelling of his breasts which had been present for two weeks. There was bilateral firm swelling of the breasts, which were of lumpy consistence, roughly circular, $1^1/_2$ in. in diameter, and freely movable over the deep tissues but attached at the centre to the nipple. There was no reddening of the skin and no increase in skin temperature, but there was slight tenderness on firm palpation. No secretion appeared when the breast was compressed.

Amphetamine sulphate had been given in a dosage of only 5 mg. every night for five weeks, making a total dosage of 175 mg. up to the time when the breasts enlarged. Amphetamine sulphate has been continued for a further six weeks, and the breast changes have remained the same.

Case 2.—A boy, aged 15, had had persistent enuresis since birth. He showed gross evidence of emotional disturbance, for which there were ample environmental causes. Amphetamine sulphate was given in view of the very heavy sleep. At first the dose was 5 mg. and later 10 mg. every night, and after 21 days, when the patient had had 170 mg., gynæcomastia was noted.

The swelling of the breasts (see figure) was as described in case 1 but considerably larger, and a little fluid, looking like milk, could be expressed from the nipples. The dose was reduced to 5 mg., and the swelling of the breasts diminished but did not disappear. The enuresis cleared.

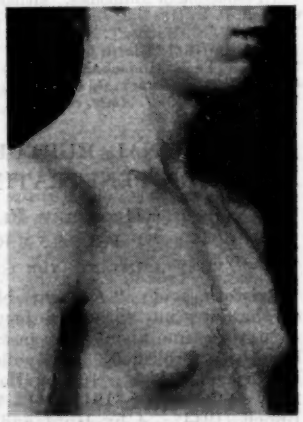
Case 3.—A man, aged 38, an inadequate psychopath with hysterical symptoms, asocial, lacking in energy, and depressed, had previously had myelitis, with residual spasticity of the lower limbs. He was treated with increasing doses of amphetamine sulphate up to 30 mg. a day, and gynæcomastia did not develop until the eighth month of treatment, when he had received 4480 mg.

Amphetamine sulphate was stopped for six weeks, and the breast swelling subsided, only to re-enlarge within three weeks of repeating the amphetamine sulphate in doses of 10 mg. twice a day. The patient gave a history of having had gynæcomastia at the age of 16.

Case 4.—In a man, aged 21, gynæcomastia did not appear until he was receiving a nightly dose of 60 mg. of amphetamine sulphate, which helped his enuresis, produced no signs of overdosage, and did not disturb his sleep.

Case 5.—A psychopathic man, aged 34, who was given amphetamine sulphate symptomatically, developed not only gynæcomastia but also impotence.

In the cases which we have observed the swelling of the breasts has been bilateral, sometimes more pronounced on one side than on the other, and usually slightly tender. The amount of amphetamine sulphate given before the onset of gynæcomastia varied greatly, but it was relatively small in the case of patients near puberty. This would be expected, since boys at puberty may develop gynæcomastia spontaneously, a condition thought to be the result of a temporary imbalance of sex hormones.



Gynæcomastia in a boy aged 15 (Case 2) under treatment with amphetamine sulphate.

A girl aged 9 years, with a severe behaviour disorder of organic origin and symptoms of hyperactivity and distractability, was treated with slowly increasing doses of amphetamine sulphate, leading to considerable improvement of her mental state; but while on a dose of 25 mg. daily, and after she had received a total of 2200 mg. in 98 days, she developed uterine bleeding, which persisted until the amphetamine sulphate was stopped after a month. Since this is so far the only case in our series where such a symptom has developed, it is too early to draw any conclusions, but it is of interest that Karnaky, discussing a paper by Powers (1941), stated that 'Benzedrine' (amphetamine sulphate) might cause uterine bleeding in susceptible patients.

None of our patients developed the symptoms of overdosage which have been described, such as insomnia, restlessness, nausea, dryness of the mouth, or anorexia.

DISCUSSION

Gynæcomastia has been observed in several conditions. Numerous reports have appeared of enlargement of the breasts at puberty, and it is clearly common at that period. Nathanson (1942) found a relative increase in the ratio of urinary œstrogens to 17-ketosteroids in such cases. Gynæcomastia has been reported in association with atrophy of the testes and with testicular neoplasm. In both these conditions adrenal hyperplasia may arise, with a relatively excessive secretion of œstradiol, and it is therefore understandable that gynæcomastia has also been reported with adrenal cortical tumour. Of the pituitary syndromes, it may occur in Cushing's syndrome in the male and, rarely, in acromegaly. It has also been reported in liver atrophy, associated with various infec-

tions, and here the cause appears to be the inability of the remaining liver cells to inactivate œstrogen.

Sullivan and Munslow (1942) observed 5 cases without apparent cause in one division of the American army. It would be interesting to know whether by any chance these men were taking amphetamine sulphate.

Gynæcomastia has been noted by Jacobs (1948) in prisoners-of-war in Japanese hands after the arrival of Red Cross parcels after a period of near-starvation. It has also been reported as an occupational disease among those concerned in the manufacture of stilbœstrol.

From these clinical observations it is clear that an increase in the circulating œstrins is the most obvious cause for gynæcomastia. Experimentally, œstradiol stimulates development of the mammary-duct system, and progesterone stimulates development of the mammary alveoli. However, both these substances are without effect in the hypophysectomised animal, and Gomez and Turner (cited by Lewis and Turner 1942) have been led to postulate the release from the pituitary by these ovarian hormones of two secondary hormones, mammogen 1 and 2, which act on breast tissue.

There appears to be little doubt that, in animals, testosterone inhibits mammary tissue, though clinical use of this hormone in gynæcomastia has produced little evidence that in the available doses a similar effect occurs in man. Edwards et al. (1938) and Lawrence (1943) showed that both desoxycortone and adrenal cortical extract can give rise to gynæcomastia.

With these facts at our disposal, and bearing in mind the individual idiosyncrasy of the patient, the local responsiveness of the tissue (which would explain the swelling of one breast more than the other), the loss of libido and impotence, and the occurrence of uterine bleeding, we may speculate about the origin of gynæcomastia in patients treated with amphetamine sulphate.

It is unlikely that amphetamine sulphate has any direct effect, since it bears no chemical similarity to the sex hormones, and it appears to us most probable that it acts at a pituitary hypothalamic level, leading to the increased production of œstrin, probably by the adrenals, and/or a reduction in testosterone, with the result that the œstrin-testosterone ratio is altered. This is at present a purely speculative suggestion, but experimental work is proceeding on both a clinical and a laboratory basis in an effort to throw further light on this interesting problem.

SUMMARY

Cases are described of gynæcomastia developing in patients under treatment with amphetamine sulphate. Other apparently œstrogenic effects are recorded.

ADDENDUM

While awaiting publication this research has continued. (1) Clinical evidence has shown that benzedrine itself is not responsible for the effects described since subsequent batches failed to reproduce symptoms in known cases of susceptibility. (2) Experimentally, with the affected batch hypophysectomised rats reproduced the signs seen in human subjects. The inference is that the effects described were due to an impurity in the amphetamine sulphate of considerable œstrogenic potency. In the course of its preparation amphetamine sulphate passes through a chemical process in which substances closely related in structure to the œstrogens are formed.

Our thanks are due to Dr. Alan Norton, who noted the first of our cases of gynæcomastia, and to Dr. Henry Wilson, under whose care these patients were.

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FIBROCYSTIC DISEASE OF THE PANCREAS IN AN INFANT

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ATTENTION was first drawn to fibrocystic disease of the pancreas by Andersen (1938) and Harper (1938). A summary of the three main clinical types (based on Andersen's work) has been given by MacGregor and Rhaney (1948). Briefly they are (1) meconium ileus in the first week of life, (2) marasmus associated with respiratory infection in the first six months of life, and (3) a syndrome clinically indistinguishable from cœliac disease after the age of six months. In the second type the stools usually appear normal though they are offensive and there is an increase in fæcal excretion of fat. In the second and third types there is a tendency to respiratory lesions, commonly as a result of infection with *Staph. aureus*; but, since the cases in which symptoms do not become apparent until after the sixth month of life are usually milder examples of the disease, the respiratory symptoms are less prominent, or, rarely, the infant may escape this complication altogether. The absence of trypsin in the duodenal juice confirms the diagnosis.

CASE-REPORT

The following case shows atypical features. Unfortunately the diagnosis was not considered until the infant was too weak for duodenal intubation.

A male full-term infant born at home on Oct. 4, 1947, weighing 6 lb. Pregnancy was uneventful and delivery normal. The infant was breast-fed. He was admitted to hospital on Dec. 22, 1947 (aged 11 weeks), with a history of slow gain in weight, frequent loose green stools since birth, and an increasing pallor from the seventh week of life. A few days after birth the infant developed a few septic spots in the right axilla which cleared in about two weeks. There had been a slight cough intermittently since birth.

Family History.—The patient had a healthy sister living, aged 9 years. In 1944 there had been a stillborn eight-months fœtus. In both these pregnancies the mother had been admitted to hospital with toxæmia of pregnancy. The mother gave no history of any other serious illness and, on admission to hospital with the infant, was found to be healthy apart from hypochromic anæmia (Hb 60% Haldane), which responded to iron. Her blood Wassermann reaction and Kahn test were negative; she had an adequate yield of breast-milk.

On admission the infant was pale, hypotonic, and lethargic and weighed 7 lb. 13 oz. There was a small healed scar in the right axilla. Throat, ears, and chest showed no abnormality. The abdomen was not distended, and the liver and spleen were not palpable. The stools were frequent (6–8 in twenty-four hours) and semi-formed, with mucus present in small quantities, but were yellow and inoffensive. Radiography of the chest showed no abnormality, and of the long bones no osteoporosis. A blood-count showed 3,500,000 red cells and 15,000 white cells per c.mm. and Hb 48%. There was no Rh incompatibility between the infant's and the mother's bloods. The urine showed no abnormality on admission or on subsequent occasions.

Treatment and Progress.—The infant on admission was treated with iron and ammonium citrate gr. 5 t.d.s., 'Adexolin' 1 ml. daily, and ascorbic acid 50 mg. t.d.s. There was little change in the clinical condition until Jan. 5, 1948 (age 13 weeks), when a scaly desquamating rash developed over the buttocks, trunk, and legs, and pitting œdema of hands and feet. Blood examination showed Hb 36%, red cells 1,910,000 per c.mm., and white cells 8500 per c.mm. (polymorphs 28%, lymphocytes 69%), serum-urea 36 mg. per 100 ml., and total serum-proteins about 3 g. per 100 ml. (insufficient blood was obtained for differential estimation). In view of these findings the infant was given complementary feeds of 'Casydrol' and daily injections of crude liver extract. Bone-marrow biopsy was not done.

By Jan. 12 the œdema had spread to the trunk and face, and the abdomen became distended with ascites. On Jan. 25 (age 16 weeks) the infant became pyrexial and developed a persistent cough and signs of consolidation of the left lung base. Within a day or two a left basal purulent effusion appeared, from which penicillin-sensitive *Staph. aureus* was cultured. Blood examination on Jan. 26 showed Hb 42%, white cells 21,000 per c.mm., serum-albumin 2·4 g. per 100 ml., serum-globulin 1·7 g. per 100 ml., and total protein 4·1 g. per 100 ml. The pleural effusion was aspirated on alternate days and penicillin 20,000 units substituted. Intramuscular penicillin was also given. A transfusion of 120 ml. of fresh blood was given on Jan. 27, and after this it was noted that the liver was palpable 2 in. below the costal margin. At this time the infant was being fed on expressed breast-milk, with complementary feeds of 'Prolac,' since the casydrol feeds were not taken well. From the development of the pleural effusion the infant's condition deteriorated. His cough interfered with feeding, and in spite of the persistent œdema his weight fell to 6 lb. by Feb. 1. The fæces on Feb. 8 were light-brown, pasty, and offensive. A wet-film showed no undigested muscle-fibres, no starch granules, but excessive fat-globules were present; total fats 36·9% of dry weight (split 31·9%, unsplit 5%). This estimation was unsatisfactory because it was made on a single specimen. In spite of temporary improvement after further transfusions of fresh blood the infant died on Jan. 21 at the age of 20 weeks after an attack of gastro-enteritis.

Necropsy Findings.—A thin male infant with œdema of dorsa of feet and hands, and of legs; distended abdomen; pale skin; and no jaundice. The abdominal and pleural cavities contained an excess of clear yellow fluid. The larynx, trachea, and main bronchi contained a little creamy pus. The left pleural cavity had a few very fine hair-like adhesions over left lower lobe but no trace of empyema. The right pleural cavity appeared normal. The left lung on section showed saccular and fusiform bronchiectasis of the left lower lobe bronchi with accompanying bronchopneumonic consolidation. The dilated bronchi contained yellow creamy pus. A swab taken from this pus yielded a good growth of *Staph. aureus* which was not penicillin-sensitive. The right lung appeared normal on section. The stomach and intestines had a thin wall, and had the dull opaque appearance often seen in gastro-enteritis in infants. The liver was slightly enlarged; its parenchyma showed fatty infiltration, with areas of diffuse congestion. The gall-bladder and bile-ducts appeared normal. The spleen was slightly enlarged, with firm and congested pulp. The pancreas appeared normal macroscopically. All other organs appeared normal.

Histology.—The bronchi were dilated (bronchiectatic), with desquamated epithelium, and their lumina contained pus cells. The adjacent lung tissue was collapsed, and small abscesses were present in the lung tissue. The liver showed extreme fatty infiltration throughout all lobes, practically no healthy liver cells being left. The pancreas showed a diffuse fibrosis, with young fibrous tissue largely taking the place of the gland parenchyma. Small groups of damaged acini were isolated from one another and surrounded by fairly dense whorls of collagen fibres. Many of the acini were entirely destroyed, and there was a diffuse infiltration with lymphocytes and plasma cells. Many of the surviving acini showed dilated lumina and a tendency for the gland epithelium to assume a low columnar form where this dilatation had taken place. There were also large cystic structures lined with cuboidal epithelium, some of which contained papilliform projections of epithelial cells of no clear pattern. The nature of these cystic spaces was not obvious. They may well have been dilated ducts, but small ones suggested an origin from gland acini. Some of them contained a mucinoid basophilic substance. Occasional groups of much disorganised cells appeared to be surviving islets of Langerhans; they were very infrequent. The kidneys showed no striking lesions.

DISCUSSION

The interesting feature of this case is the development of generalised œdema associated with severe hypoproteinæmia. A slight reduction of the serum-proteins has been occasionally recorded—e.g., by Menten and Middleton (1944)—but I have been unable to find any reports of cases in which hypoproteinæmia was associated with œdema. Anæmia is a not uncommon complication of fibrocystic disease of the pancreas, but it is not usually so marked as in the present case, where it can presumably be explained on the basis of iron deficiency together with the protein deficiency.

It is presumed that in this case the œdema was mainly secondary to the hypoproteinæmia, though other factors, such as anæmia and, in the later stages, cardiac failure, may have played a part in its production.

One point, which has been noted by other workers, is the frequency of a normal macroscopical appearance of the pancreas, even when, as in the present case, there is very little normal tissue to be seen histologically. This is probably the reason why fibrocystic disease of the pancreas (which is not very uncommon) has been clearly recognised only within the last ten years.

There is little doubt that some cases of infantile marasmus which have been attributed to intolerance of protein or fat or to respiratory lesions have been cases of fibrocystic disease of the pancreas. It is therefore important to bear this disease in mind whenever infants do not gain sufficient weight on an adequate food intake, and to examine the pancreas histologically in all infants coming to necropsy with a doubtful diagnosis.

SUMMARY

A case of fibrocystic disease of the pancreas in an infant is described.

An unusual feature of the case was the development of generalised œdema associated with severe hypoproteinæmia.

The pancreas at necropsy in such cases often appears normal macroscopically.

Fibrocystic disease of the pancreas should be considered in any obscure case of wasting in infancy.

I wish to thank Dr. M. O. Skelton for the necropsy report and Dr. E. N. Allott for his helpful criticism in the preparation of this paper.

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ESTIMATION OF ERGOTHIONEINE IN URINE BY PAPER PARTITION CHROMATOGRAPHY

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THE suggested antithyroid activity of ergothioneine (Lawson and Rimington 1947a and b, Astwood and Stanley 1947) makes it important to estimate ergothioneine in biological fluids. The method of estimation described here was developed for the clinical trial of ergothioneine reported by Lawson and Rimington (1947b). Though only roughly quantitative, it seems to be the only reliable one for routine examination of urine.

Methods of Hunter (1928) and Sullivan and Hess (1933) have been tried unsuccessfully in this department for the determination of ergothioneine in urine and in blood. These methods depend on colorimetric measurements; they break down in the case of urine because they do not separate ergothioneine from all the other substances in urine which give similar colours with the reagents used. This separation can be achieved by partition chromatography in which two immiscible solvents are used to separate a mixture of compounds in solution.

PAPER CHROMATOGRAPHY

Paper chromatography has been described for amino-acids by Consden et al. (1944) and applied by Dent (1946, 1947) to biological fluids.

TABLE I—R_F VALUES OF ERGOTHIONEINE AND OTHER POSSIBLE CONSTITUENTS OF URINE

Substance	Colour reaction	R_F values	
		Phenol	Collidine-lutidine
Ergothioneine	Pauly Folin-Marenzi	0·88	0·28
Uric acid*	Folin-Marenzi	0·24	0·38
Thiolhistidine	Pauly Folin-Marenzi	0·25	0·57
Sodium uricanate in saline	Pauly Folin-Marenzi	0·36, 0·48	0·79
Ascorbic acid	Folin-Marenzi	0·38	0·42
Glutathione†	Folin-Marenzi	0·12	0·12
Guanine	Pauly	0·27	0·53
Histidine	Pauly	0·77	0·24
Tyrosine	Pauly	0·63	0·53

* In concentrated urine, R_F value in phenol 0·42.
† Cited from Dent (1948).

A drop of the solution under investigation is placed on a strip of filter paper near one end, which is dipped into a water-saturated organic solvent, such as phenol. The second solvent is provided by the water always bound in the pores of the filter paper. The organic solvent creeps past this water phase, carrying along at different rates dissolved substances which distribute themselves along the paper as bands located according to their partition coefficients in phenol and water. After a suitable time the filter paper is dried, and the positions of the substances under investigation are determined by any suitable method, usually a colour reaction.

The positions of the bands are defined by their R_F values—i.e., the ratio of the distance run by the substance to the distance run by the solvent from the application line (Consden et al. 1944). By careful choice of solvent and conditions it is usually possible to separate any two or more substances occurring together.

The method can be made roughly quantitative. The size or colour strength of the spot obtained from a given volume of the solution under investigation can be compared with that produced by a known amount of the substance. Alternatively, the least detectable amount of the pure substance can be determined, and the least volume of test solution necessary to give a detectable band can be assumed to contain this amount. The latter method was used in the work described here.

TECHNIQUE

The technique and apparatus used were those described by Dent (1946).

Single dimensional chromatograms were used to distinguish ergothioneine from other substances in the urines. Ergothioneine was identified on the paper by spraying first with 10% sodium hydroxide and then with phosphotungstic-acid uric-acid reagent (Folin and Marenzi 1929). The position of any blue bands thus produced was marked immediately, for the colour faded in a few minutes and, in the case of urine, a general blue background appeared slowly. Ergothioneine could also be located by the bright red which it produced with diazotised sulphanilic acid in the form of the Pauly reagent (Pauly 1904) after preliminary spraying with 10% sodium hydroxide. In this case best results were obtained after removal of the chromatographic solvent by successive washing with acetone and ether.

It was necessary to concentrate urine before application to the paper, for no ergothioneine could be detected in 50 µl. of urine as passed. So 20 ml. of urine was concentrated almost to dryness in a freeze-drying apparatus, the concentrate was washed into a graduated cylinder with 2 ml. of water, and the volume was made up to 4 ml. with ethyl alcohol. The precipitate, consisting probably of salts and uric acid, was removed by centrifugation, and a suitable volume of the mother liquor was used for ergothioneine estimation.

The ergothioneine used for the control experiments was the crystalline hydrochloride described by Lawson and Rimington (1947b).

RESULTS

Ergothioneine (10 µg.) gave a well-marked band when run in phenol or in a collidine-lutidine mixture. The R_F values of the bands are given in table I, which also shows R_F values of other substances which are likely to occur in urine and which give colours with Pauly's or Folin-Marenzi reagents.

Run in phenol ergothioneine has an R_F of 0·88. All the other substances reacting with the Folin-Marenzi reagent are well separated from it, having R_F values of less than 0·5. Histidine cannot be separated with certainty from ergothioneine in phenol, but since it gives no colour with the Folin-Marenzi reagent it will not interfere with ergothioneine provided Folin-Marenzi reagent, and not the Pauly reagent, is used to develop the bands.

Collidine-lutidine mixture is not as suitable as phenol for separating ergothioneine, since several other substances reacting with the Folin-Marenzi and Pauly reagents have R_F values fairly close to that of ergothioneine.

The choice for routine determinations obviously lay with phenol-water as a solvent, and Folin-Marenzi reagent as an indicator.

50 µl. of normal unconcentrated urine, run in phenol and developed with Folin-Marenzi reagent, gave one band only, R_F 0·24, which corresponds to uric acid, whereas 20 µl. of five times concentrated urine gave two bands at R_F 0·42 and 0·8.

The faster running band was identified as ergothioneine since it gave the characteristic colour reactions, and addition of ergothioneine to the urine increased the strength of the band but did not change its R_F value. The slower band was identified as uric acid, both by addition of uric acid to the urine and by the characteristic yellow it gave when sprayed successively with 0·125 *N* sodium carbonate and a 0·4% alcoholic solution of 2:6-dichloro-quinone-chloroimide (Fearon 1946). The shift in the uric-acid band from R_F 0·24 to R_F 0·42, which was found in chromatograms of concentrated urines, is believed to be due to the effect of the greatly increased amounts of inorganic salts present. The salts move to a large area around the region of R_F 0·2 (Dent 1946) and seem to take precedence there, with the result that the uric acid is forced to its new position at R_F 0·42.

TABLE II—ERGOTHIONEINE CONTENT OF URINES IN TWO CASES OF THYROTOXICOSIS BEFORE AND AFTER TREATMENT WITH ERGOTHIONEINE

Time	Smallest volume of 5 times concentrated urine required to give band (µl.)	Ergothioneine concentration (mg. per 100 ml.)	Total daily excretion (mg.)
Case 1 (male, aged 16):			
Pre-dosage	40	3·8	39
6½ hr. post-dosage	40	3·8	
16 " " "	40	3·8	50
22 " " "	40	3·8	
23½ " " "	30	5·0	
2nd day of dosage	30	5·0	118
3rd " "	80	5·0	85
4th " "	30	5·0	109
5th " "	30	5·0	107
6th " "	30	5·0	115
7th " "	30	5·0	111
8th " "	20	7·5	118
9th " "	20	7·5	152
10th " "	20	7·5	122
11th " "	20	7·5	191
13th " "	15	10·0	183
15th " "	30	7·5	147
Case 2 (female, aged 65):			
Pre-dosage	10	15·0	190
"	10	15·0	178
1st day of dosage	Separate samples analysed giving total		188
2nd " "	15	10·0	167
3rd " "	15	10·0	152
4th " "	30	5·0	115
5th " "	15	10·0	178
6th " "	15	10·0	180
9th " "	10	15·0	180
10th " "	15	10·0	150
11th " "	10	15·0	206
12th " "	15	10·0	181

To determine the least amount of ergothioneine which could be detected by this method, the following amounts of a solution containing 1 mg. per ml. were run in phenol: 5, 7·5, 10, and 15 µl. Positive ergothioneine bands were consistently obtained with 7·5 µl. (containing 7·5 µg.) but not with 5 µl. Therefore the least detectable amount of ergothioneine was taken as 7·5 µg.

Normal urines, five times concentrated, put on at 5, 10, 15, and 20 µl. levels, gave no ergothioneine band at 5 µl., but in 6 out of 8 urines 10 µl. gave a detectable band. This corresponds to a level of 15 mg. of ergothioneine per 100 ml. of fresh urine, or a daily excretion of about 225 mg. The remaining two normal urines gave bands at 15 µl. levels and therefore contained 10 mg. per 100 ml. of fresh urine. The method was checked by adding known amounts of ergothioneine to concentrated urine. The minimum amount of urine giving the ergothioneine band was in all cases lowered by the expected amount.

Ergothioneine excretion was followed in the two thyrotoxic patients on whom therapeutic trials of ergothioneine were being carried out (Lawson and Rimington 1947b). Both patients were given, intramuscularly, a daily amount of ergothioneine hydrochloride equivalent to 79 mg. of free base. For the first 24 hours individual samples of urine were examined; thereafter 24-hour specimens were taken.

The results, shown in table II, are tabulated to show the minimum of concentrated urine required to give a detectable ergothioneine band; also the calculated ergothioneine concentration of each sample and total daily excretion. The two patients responded differently: case 1, with a low initial excretion of 30 mg. daily, showed a rise in rate of excretion within 24 hours of dosage, and the total excretion rose to well over 100 mg. daily. Case 2, with a normal ergothioneine level, showed no change in ergothioneine excretion. In both cases the volume of urine increased considerably after dosage.

DISCUSSION

This method of estimation is at best only roughly quantitative (±50%) and as applied here is only comparative. The minimum levels in urine giving a positive ergothioneine band could be compared by adopting a standard technique. The method was developed at short notice to follow the excretion of ergothioneine during clinical trials, since no other method was satisfactory. The numbers of urine samples which could be applied to the paper to test for minimal levels were limited by time and space; hence quantities of only 5, 10, 15, 20, 30, and 40 µl. were used, which makes the error considerable. The error could be reduced by decreasing the size of the steps and by determining with greater accuracy the smallest detectable amount of ergothioneine. So far as the present figures go, the level of ergothioneine in normal urine lies between 130 and 300 mg. per litre. Sullivan and Hess (1933) estimate the amount of "ergothioneine-like" material to be about 90 mg. per litre of normal urine.

My thanks are due to Mr. R. Denman for technical assistance and to Prof. C. Rimington and Dr. A. Lawson for encouragement and advice.

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Medical Societies

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM

THE annual congress of this society was held in London from March 31 to April 2 under the presidency of Mr. FRANK JULER. On the two days preceding the meetings, four lectures were delivered at the Royal College of Surgeons by distinguished visitors from abroad.

Prof. A. FRANCESCHETTI (Geneva) spoke on cataract associated with lesions of the skin; Prof. G. B. BIETTI (Pavia) on ophthalmic aspects of protein deficiency and disordered protein metabolism; Dr. E. HARTMANN (Paris) on psychosomatic symptoms in ophthalmology, and Prof. H. J. M. WEVE (Utrecht) on ophthalmic manifestations of Besnier-Boeck's disease.

Having welcomed these and other guests, the President went on to announce that a medal for past and future Bowman lecturers had been cast. Sir John Parsons, F.R.S. (lecturer in 1924), Prof. Weve (1939), and Prof. Marc Amsler (1948) received the medal in person, and arrangements were made for its dispatch to Sir Arthur Keith (1930), Professor van der Hoeve (1932), and Dr. Arnold Knapp (1946).

PRESIDENTIAL ADDRESS

Two subjects considered in Mr. JULER'S address were (1) the operation for acute glaucoma, and (2) refraction.

He paid tribute to von Graefe's pioneer work on glaucoma, which was achieved under the handicap of rudimentary anæsthetic technique, to say nothing of ignorance of the bacteriology of wound infection. He went on to point out the importance of avoiding trauma to the corneal endothelium, and emphasised the part played by this accident in producing anterior synechiæ. He contended that operation should not be unduly delayed after miotic drugs and other remedies have proved ineffective. In twenty-four hours—or in severe cases even less—the retina and optic nerve may be irretrievably damaged.

In refraction for objective estimation, he favours the use of a battery of spherical lenses in conjunction with a point-light or streak-retinoscope, and he spoke of the need for special accuracy in dealing with children. He also drew attention to the mistakes that may arise from tilting the lenses employed during retinoscopy, especially in cases of high refractive error, and described a method of avoiding such a source of confusion. For subjective testing he strongly recommended Jackson's crossed cylinders, and underlined the benefits from testing the binocular as well as the uniocular vision for distance. Chavasse's E-test was favourably mentioned, and comments were made upon the special problems of presbyopia, anisometropia, and oblique astigmatism. In connexion with oblique astigmatism Mr. Juler drew attention to the possibility of exploiting the compensatory ocular torsion which is noted when a patient tilts his head to either side. He ended by expressing his disbelief in the notion that myopia is provoked by using the eyes for near work. Heredity, he said, was the most important factor, though debilitating disease may sometimes play a part.

CORNEAL GRAFTING

A discussion on corneal grafting was opened by Professor FRANCESCHETTI, who gave a historical review of the subject and went on to say that minor differences in technique are not vitally important. Speaking on the relative advantages of keratectomy and laminated grafts, he deprecated the adoption of hard-and-fast rules. Every case presented a separate problem, and the question at issue was not simply which was the best method, but rather which one should be chosen in any particular case. Special consideration was given to the assessment of prognosis; and Professor Franceschetti admitted that the outlook is unfavourable in traumatic leucoma of the cornea and in aphakic eyes, whether or not the lens has been lost as a result of trauma.

Mr. J. W. TUDOR THOMAS (Cardiff) described his operative technique, with particular reference to cross-

suturing. He pointed out that the chances of a graft taking successfully are greater if the recipient cornea is opaque in the zone of implantation. Another feature to which he drew attention was the danger of vitreous prolapse if an operator tries, at the time of grafting, to remove the retrocorneal membrane often present in cases of old iridocyclitis.

Prof. G.-P. SOURDILLE (Nantes), part-author of the comprehensive report on corneal grafting issued last year by the Société française d'Ophtalmologie, reviewed the ways in which the fate of a graft may be jeopardised by associated ocular lesions and abnormalities of the eyelids. A small symblepharon, for instance, might be ignored, but extensive adhesions of the palpebral to the ocular conjunctiva necessitated a mucous-membrane graft before keratoplasty was undertaken. If there was reason to suppose that the lens was sufficiently opaque to preclude a good visual result from grafting of the cornea, then the graft should be completed before extraction of the lens, because aphakic eyes, as most authorities agreed, responded unfavourably to keratoplasty.

A film entitled *Trephine Keratoplasty* showed an operation for corneal graft, with successful outcome, performed by Mr. B. W. RYCROFT.

Mr. D. P. CHOYCE read a paper describing the technique and results of superficial lamellar keratoplasty in rabbits. These experiments, which were performed at the Institute of Ophthalmology, suggest that the grafted tissue in a successful case does not undergo rapid rejection. It seems to retain its identity until about six months later, by which time it falls due for normal replacement.

Dr. R. CASTROVIEJO (New York) briefly discussed the applicability of superficial and of whole-thickness grafts, and proceeded to show a series of extraordinarily clear colour-photographs depicting his operative results. Dr. J. I. BARRAQUER (Barcelona) showed a film which lucidly illustrated his technique of accurate apposition of the graft by direct suturing. Mr. G. W. BLACK (Leeds) described a case in which he had performed corneal grafting. Dr. A. FRITZ (Brussels) showed how a portable modification of the slit-lamp and corneal microscope can ease the operator's task, and he illustrated the way in which a contact glass may be employed for postoperative protection of the grafted cornea.

One of Professor Sourdille's collaborators in the French report on corneal grafting was Dr. L. PAUFIQUE (Lyon), who dealt with the three main indications for non-perforating keratoplasty. First, it may be employed as an optical device to improve the vision when a corneal opacity is confined to the superficial layers. Secondly, a superficial keratoplasty may prepare the way for a perforating graft when the latter procedure is contra-indicated by vascularisation of a dense leucoma. Finally, there are certain corneal conditions, including neurotropic lesions, which may be benefited by superficial keratoplasty. Dr. Paufique showed a film which clearly depicted his method of performing a peripheral lamellar graft.

Professor Bietti described his own modifications in technique, and gave a résumé of his results. He also referred to the possible advantages of administering vitamins and amino-acids to discourage the opacification of engrafted corneal tissue.

NEURO-OPHTHALMOLOGY

Dr. S. P. MEADOWS gave an interesting account of the symptomatology of internal-carotid aneurysms, and recounted several illustrative case-histories.

Discussing the problem of awareness or non-awareness of visual field defects, and cerebral metamorphopsia, Dr. MACDONALD CRITCHLEY paid special attention to the occurrence of optic alloæsthesia, in which objects appear to be displaced from one point of the visual field to the mirror-point on the opposite side. Another state of mind hitherto unfamiliar to most of Dr. Critchley's listeners was paliopsia, or visual perseveration, in which real objects extend themselves in time and space.

OTHER CONTRIBUTIONS

Mr. D. N. MATTHEWS surveyed the technique of plastic operations in the neighbourhood of the orbit. The subjects he considered were the treatment of congenital ptosis by a modified Blaskowicz operation, the correction of epicanthic folds, reconstruction of eyelids damaged by skin disease or trauma, the lining of a socket by mucous-membrane grafts, and reconstruction of the nasolacrimal duct.

Mr. J. R. WHEELER (Belfast) reviewed the effects of curare, retrobulbar procaine, and di-isopropylfluorophosphonate in reducing intra-ocular tension.

Mr. EUGENE WOLFF read a paper on normal and pathological ocular pigment, generously illustrated by histological pictures.

Dr. HARTMANN described his clinical experiences with Baillart's ophthalmodynamometer—an instrument used for estimating the pressure in the retinal arteries. Although admitting that this method has many limitations, theoretical and practical, Dr. Hartmann maintained that it is clinically valuable, so long as the technique is mastered and the results interpreted with discrimination.

Mr. W. J. WELLWOOD FERGUSON and Dr. A. G. MACGREGOR contributed an account of congenital colour-blindness associated with otosclerosis, and discussed the genetical aspects of this group of cases.

Dr. A. C. COPPER (Leiden) described the use of his orbitonometer for measuring the retrobulbar resistance in Graves's disease and other conditions.

Dr. G. KARPE (Stockholm), a pupil of Professor Nordensen, gave an account of his work on clinical electroretinography.

Some problems in ophthalmic dispensing were treated by Mr. J. PIKE; and Dr. J. HERKSON read a paper on retinal arteriolar spasm in toxæmia of pregnancy.

At the annual dinner on March 31 Professor Franceschetti proposed the toast of The Society, and the President replied. Dr. Macdonald Critchley and Lord Webb-Johnson replied to the toast of The Guests, proposed by Mr. J. H. Doggart. The President's health was proposed by Miss Ida Mann.

On April 1 a number of foreign visitors and their wives dined at Apothecaries' Hall as guests of the council of the Faculty of Ophthalmologists. They were welcomed by the president of the faculty (Sir Stewart Duke-Elder), and the honorary secretary (Mr. Frank Law) described the history and customs of some of the city companies and institutions.

Reviews of Books

Ernährungslehre und Diätetik

M. J. DEMOLE, reader in dietetics, University of Geneva; A. FLEISCH, director, physiology institute, University of Lausanne; CL. PETITPIERRE, reader in physiology in the university. Berne: Huber. 1948. Pp. 382. Sw. fr. 24.80.

THIS is the third of a series of volumes intended to cover all aspects of medical treatment. It has two main sections—a short preliminary survey of general principles, by Professor Fleisch and Dr. Petitpierre, and a much longer section, by Dr. Demole, in which the rationale o dietetic treatment is discussed and instructions are given for the appropriate diets. Dr. Demole is in charge of dietetic treatment at the Canton Hospital, Geneva and is well equipped to deal with this subject. It is however, a hard time for the planners of diets, even in Switzerland, and with fish and meat at 8 and 9 Swiss francs for one kilogramme some of the recommendations are sadly impracticable. One way in which the price of special diets can be reduced is by mass catering, and it is surprising that so little reference is made to the really excellent system of outpatient diet kitchens, supplying all meals at reasonable cost to patients, which is in operation in some of the biggest Swiss and American hospitals. Other subjects that might profitably have been given more space include the diets of infants and troubles arising from food allergy. The book contains a great deal of useful information, but much of it is scattered rather diffusely, and some regrouping of the tables might be considered for future editions. The index is somewhat perfunctory, and the doctor who has time to form his own opinion by consulting the literature would be glad if the references to the text of Dr. Demole's contribution were restored.

The Nomenclature of Disease

(7th ed.) Royal College of Physicians. London: H. M. Stationery Office. 1948. Pp. 385. 8*s*. 6*d*.

AT least three disease classifications have been published in the 18 years since the sixth edition of this Nomenclature appeared in 1931, and the delays arising from the war have led to the new volume appearing only a few months ahead of the World Health Organisation's international classification now obtainable in Geneva. This seventh edition differs considerably from its predecessor in arrangement, and the number of terms is well-nigh doubled. Some of its features show the influence of the American Standard Nomenclature, and in this the compilers pay tribute to a fine piece of work. An ætiological classification of disease is applied to the various parts and systems of the body in turn: well-known synonyms are included in brackets, and a separate list of eponyms is provided, though their use, with certain exceptions, is discouraged. A list of eponyms can never be complete, but this is undoubtedly one of the most comprehensive so far published. There is an index of over 17,000 entries—more than twice as many as before.

Some Common Psychosomatic Manifestations

J. BARRIE MURRAY, M.D., M.R.C.P., diagnostic physician, Tavistock Clinic, London. London: Oxford University Press. 1949. Pp. 114. 7*s*. 6*d*.

Dr. Murray contends that 60% of cases seen in a medical outpatient clinic are either wholly psychiatric or have an important psychiatric element. His clinical guide to diagnosis and prophylaxis will be appreciated by the conventionally trained practitioner. He examines in turn the cardinal symptoms and signs of effort syndrome, heads them off into the psychoneurotic fold, and enjoins an interpretation that can be followed by anyone familiar with the ideas of Babinski. The Service medical officer will be particularly grateful for the lucid descriptions of hysterical phenomena. A title more faithful to the author's material would perhaps have been "Common psychoneurotic manifestations simulating cardiovascular disease." Too much perhaps is made of a comparative analysis by percentages of the clinical features as they occur in psychoneurotic, effort-syndrome, low-backache, and heart-pain groups, whose members range in number from 15 to 400. On the psychosomatic side fever is not mentioned as being other than a precipitant of the syndrome; Friedman's papers (gathered together as *Functional Cardiovascular Disease*, 1947) on orthostatic giddiness and pulse-pressure, and on the mechanism of precordial pain, could usefully have been consulted. There are no references later than 1941.

Hematology

CYRUS C. STURGIS, M.D., professor of internal medicine, and director of the Thomas Henry Simpson Memorial Institute for medical research, University of Michigan. Oxford: Blackwell Scientific Publications. 1948. Pp. 915. 63*s*.

THIS large volume differs from other hæmatological textbooks in several ways. The most notable is the historical approach to all sections: this does not consist in a few early references, but involves an extended account of the early work and the development of our knowledge in every country, continued up to modern times. The later literature on this subject is immense, but the claim that a fair and careful selection has been made is, on the whole, justified. Another unusual feature is that no attempt is made to discuss in any detail the nomenclature and development of the blood and marrow cells: references to nomenclature appear in some chapters, but for the most part Professor Sturgis takes the reader's knowledge for granted; chapter 1 leads off at once with the classification of the anæmias.

The 23 chapters follow usual lines: the various anæmias, the hæmorrhagic diseases, the leukæmias, and so on are considered in turn. But each subject is dealt with in a more discursive manner, with more of a continuous argument, and with more of the author's own experience included, than is usual. This gives the book a distinctly individual flavour, and it is better written than many textbooks we could name. Separate chapters on sternal puncture and blood-transfusion conclude the volume. It is not well illustrated and the colour plates are indifferent.

The references suggest that this book was written some time ago; almost always the discussion stops short about 1943; and some of the chapters, such as those on hæmolytic anæmias and on iron-deficiency anæmias, are therefore of historical interest only. The work on folic acid, however, is described in an interpolated section.

The book cannot be recommended to students, for it assumes too much basic knowledge and is insufficiently up to date for higher examinations. It is much too long for the general practitioner, and clearly it is not designed as a work of reference. The person who will appreciate it is the practising hæmatologist, who will savour the finer points and the leisurely treatment of the subjects.

Change of Life in Women (London: Delisle. 1949. Pp. 76. 5*s*.).—Writing under the pseudonym of "Medica," a distinguished woman doctor gives an account of the menopause and its concomitants—hot flushes, moods, and minor disorders. She explains the physiology of the change of life and presents a reassuring picture of the whole process up to the stage when a new balance is achieved by the endocrines, and the woman settles down to the equilibrium which lasts her handsomely for the rest of what is often a long and useful phase of her life. Medica is not only informed in the disorders women experience at the menopause but is skilled in their alleviation; and her book explains clearly that most of them can be relieved, either by sedatives, reassurance, and a rearrangement of the woman's life and duties, or by suitable dosage with œstrogen. The book is always clear and is written with a sense of the turn of phrase which makes awkward topics acceptable. Not only the menopausal woman, but her family as well, and even her doctor, will profit by a glance through it.

The Scotsman's Food (Edinburgh: E. & S. Livingstone. 1949. Pp. 86. 3*s*. 6*d*.).—This "historical introduction to modern food administration," by Dr. A. H. Kitchin and Dr. R. Passmore, reviews, in a couple of hours' entertaining reading, the past and present diet of the Scots, and its relation to their health and social life. Written primarily for students, it could nevertheless be read with profit by many older people. Of the three chapters, the first describes the typical Scottish dietary from medieval times up to the 18th century: oats and barley, pulses, kale and cabbage, milk, cheese, and eggs, with potatoes and turnips as a latter-day addition, formed the staples, washed down with ale (not whisky). Meat and fruit were nearly always scarce, and fish dependent on local supplies. The effects of war, primitive farming methods, and drought on food-production are illustrated from contemporary accounts. Chapter 2 describes the "Age of the Industrial Revolution," when, in the middle of the last century, the population passed 3 million, which the authors regard as probably the maximum that could be fed off the country's own produce, however efficiently the land were farmed. The nutritional value of the common diet deteriorated through higher consumption of white wheat flour, refined sugar, and unvitaminised margarine, with a lower consumption, in the cities, of milk and vegetables. The crowding of people into slum tenements resulted in widespread rickets and appalling mortality among children: "the apparent industrial prosperity of the second half of the nineteenth century . . . was biologically a sham." The final chapter, on "The Age of State Planning," summarises the measures taken during and since the late war to ensure the equitable distribution of limited food-supplies. The authors do not underestimate the monotony of the Scotman's present diet, but they think it nutritionally adequate. They conclude that "probably never before in history, and certainly not within living memory, have the children of Scotland been so healthy. This is an achievement in which all those responsible for our war-time and subsequent food services may take justifiable pride."

The price of *Life and Sex* by Havelock Ellis was given incorrectly in our review (April 2, p. 570). It is published by Heinemann Medical Books at 17*s*. 6*d*.

"sacred disease"

Hippocrates, "Father of Medicine," was centuries ahead of his time when he insisted against the opinion of all orthodox Greek medicine that "sacred disease" (epilepsy) resulted from natural causes and was not due to possession by the gods.

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THE LANCET

LONDON: SATURDAY, APRIL 16, 1949

Cryptogram of Age

"... man has aged considerably before he is born and continues to age rapidly in youth, and more slowly as life advances."

THIS pretty paradox of the laboratory, based on the rate of growth of tissues and their ability to reproduce themselves at the speed at which they themselves were formed, would hardly seem convincing to the old people in a chronic ward. Nevertheless, it reminds us, as Prof. A. P. THOMSON pointed out in his Lumleian lectures to the Royal College of Physicians last week, that we know very little about the process of ageing, even though we are beginning to know a little about the disorders of age. The first question is whether senescence is as inevitable as it seems. We know that its time of onset varies in different people, different families, and different races: it appears earlier in tropical races, for instance, than in those of temperate zones, which means perhaps that external environment, or the effects of infection, accident, malnutrition, or excesses, may hasten it. Moreover it is by no means universal throughout nature. Insects at death generally show no signs of antiquity, though some of them get a little tattered towards the end; fish have the laugh of us after all, for apparently they become neither senescent nor infertile; tortoises keep old age at bay for centuries; while perennial plants show no morphological evidence of senescence in succeeding years. Suitable modifications of the environment, indeed, may greatly prolong the growth period and survival of plants and seeds. Dr. THOMSON quoted, too, the findings of SAXTON that growing rats fed on a properly balanced but reduced diet lived much longer than a similar group whose diet was the same but unrestricted. Mature rats likewise lived longer when obliged to be abstemious; and this is a good argument, he thinks, for a moderate diet in middle age.

Even in the human body, ageing is not a uniform process: some organs keep their youth longer than others. The teeth, the joints (particularly of the vertebræ), the arteries, and the fat depots show changes long before the other organs; and possibly, Dr. THOMSON hinted, this early deterioration of the closed systems may be the result of metabolic or other disturbances conditioned from without. The life and reproduction of most cells can be prolonged by artificial culture for periods far exceeding the life-span of the parent organism; and cultures of aged tissue, though slow in starting, will grow as well as those from a young one. Their growth may be encouraged by tissue fluids from a young animal of the same species, which suggests that ageing of the tissues may have something to do with humoral changes. This seems to be borne out by some preliminary studies Dr. THOMSON and his colleagues are making at Birmingham. They have found some curious changes in the pattern of blood-chemistry in apparently healthy old men: the sodium and chloride are reduced, the hypoglycæmic response to intravenous insulin is delayed, storage of vitamin C is defective, and the excretion of 17-ketosteroids is diminished. He thinks these changes suggest a deficiency of the suprarenal cortex, but there is no increase in the blood-potassium and no clinical evidence of Addison's disease. The pattern of blood-chemistry is restored to the accepted normal by injections of testosterone, and on this treatment the patients gain weight and feel better. Another aspect of the problem of ageing is presented by progeria, and by the sudden appearance of senescence after mental or physical shock. In these latter cases the process is sometimes reversible, the grey hair becoming brown again, the wrinkled skin recovering its elasticity, and lost sexual desire returning.

Such facts, and the speculations they evoke, lead Dr. THOMSON to conclude that the more we consider ageing the wider is the field of research opening before us. "The problem," he said, "is one which intimately concerns the whole of clinical medicine, and yet has been almost entirely neglected." Moreover, what little we know is not being taught. "The virtual exclusion of the aged and the chronic sick from the wards of the teaching hospitals is responsible for serious defects in the training of medical students." The infirmaries at present are acting as acute general hospitals for the aged as well as caring for the hopeless cases. The aged sick should have the chance of being investigated at a general hospital. The danger of blocking acute beds with long-term cases can be overcome, he believes, by efficient classification; for the ultimate fate of the aged, he finds, can be determined within about three months of admission: some will die, some can be treated and sent home, and some will need protracted care in an infirmary. Under such an arrangement the long-term cases would be properly investigated and treated before they reached the infirmary wards. Undoubtedly the aged would gain if the responsibility for their care was shared in this way. As Professor THOMSON has shown, the problems they would bring to the general hospital would also enrich the main stream of medicine.

Cold Agglutinins

EVER since HAYEM discovered cold agglutinins in 1889, these antibodies have trapped unwary blood-groupers, who are liable to return as AB a blood that really belongs to some other group. These agglutinins are well known to be present quite often in the plasma of patients with various unrelated diseases—blood disorders like hæmolytic anæmia, aplastic anæmia and acute leukæmia; malaria, trypanosomiasis, atypical (virus) pneumonia, cirrhosis of the liver, and Raynaud's phenomenon. They are definite antibodies, found in the plasma. They agglutinate red cells best at a temperature of 3–4°C, and they do not act at all at 38°C; the upper limit at which they still act rises with the titre to which they can be diluted without becoming ineffective, and titres varying from 1 in 1 to 1 in 2024 have been

reported. The agglutination of red cells is characteristically reversed by warming to 38°C; the red cells absorb the agglutinins at low temperatures and release them again on warming. Cold agglutinins act on the red cells of all human groups, and when, in grouping, cells from a person with a cold agglutinin are added to the test anti-A and anti-B sera at room temperature, enough plasma is carried over with the cells to cause agglutination in both test sera, with the result that the blood is reported as of group AB. This pitfall can be avoided by the simple expedient of warming the mixtures; or alternatively the cells can be thoroughly washed in saline before testing. These precautions are all the more necessary since cold agglutinins are not confined to people with diseases: examining the plasma of 50 healthy persons ALLASIA,[1] in Rome, found them in 9; and the proportion was similar in 130 patients with miscellaneous illnesses. The possibility that a group-AB result may be due to cold agglutinins must therefore always be borne in mind.

BENHAMOU et al.,[2] in Algiers, have found cold agglutinins in 56 cases. The majority had malarial splenomegaly, but they refer especially to the presence of the agglutinins in hæmolytic anæmia with acrocyanosis, in acute hæmolytic anæmia due to sulphonamides, and in pregnancy.

Their patient with acrocyanosis was a man of 40, who even in Algiers had intense cyanosis of the nose, ears, and extremities; he also had a hæmolytic type of anæmia with an enlarged spleen. A strong cold agglutinin, titre 1 in 512, was found in his serum. When his hands were put into water at 37°C the cyanosis disappeared, but it returned when the water temperature fell to 33°C. By examining the nail-bed capillaries under a direct-vision microscope, agglutination of the red cells could be observed in vivo. The patient was then subjected to "l'épreuve des bains glacés," which not only caused him to turn blue but also raised his serum bilirubin and his excretion of urobilin. He was watched for a year and was found to be more anæmic in the cool season. As the cold agglutinins have been shown to be connected with the globulins of plasma (Cohn's fractions II and III) BENHAMOU et al. tried to desensitise their patient by giving a series of subcutaneous injections of his own plasma globulin. The effect was a surprising remission of signs and symptoms; the titre of the cold agglutinin fell to 1 in 4, and it ceased to be active above 20°C.

This combination of cyanosis in the peripheral vessels with cold agglutination has been noted before,[3] and BENHAMOU et al. are able to give a list of 15 recorded cases; but the treatment by globulin desensitisation is new and the results unexpected. Cold agglutinins have also been observed before in acute hæmolytic anæmias. BENHAMOU's patient had had a meningioma removed, and 46 g. of a sulphonamide drug was given in five days; in the anæmia which developed, and from which he died, cold agglutinins were present with a titre of 1 in 2024 against A and B cells and 1 in 512 against O cells. From experience with similar cases the Algiers workers suggest that a watch should be kept for the appearance of cold agglutinins in patients receiving large doses of sulphonamide, since they seem to herald the onset of hæmolytic anæmia and are thus a signal for stopping the treatment. As regards pregnancy the point they emphasise is that cold agglutinins occur even in seemingly normal persons, and that every apparent group AB should be checked in the manner described.

As might be expected, patients with cold agglutinins can be difficult subjects to transfuse, and BENHAMOU et al. describe some instructive cases.

One man, who belonged to group B and had a cold agglutinin of titre 1 in 4, was given some small transfusions of group-O blood, and after each of them had a severe reaction with cyanosis and pain in the spleen; there was no subsequent rise of his red-cell count. When he was given group-B blood there were only minor reactions and the transfusion satisfactorily raised the red-cell count. He was then transferred to the surgeons for splenectomy, and after the operation was transfused again—with group-O blood. When only 100 ml. had been given, he had a violent reaction and complained of constriction of the chest; "il est bleu de la tête aux pieds et glacé." Despite these vicissitudes, he recovered.

The lesson of such cases is that if there is a cold agglutinin in the recipient's plasma, compatible blood —matched at 37°C—of the recipient's group must be used. If the titre of the cold agglutinin is over 1 in 128, reactions must be expected and the blood must be administered slowly. Even with these precautions some patients will hæmolyse some of the transfused red cells. Here is one more reason for always giving blood of the patient's group instead of group-O blood; in this country, with its National Blood Transfusion Service, there is really no excuse, except in emergencies outside hospital, for the continued use of group O as the universal donor.

1. Allasia, G. *Policlinico*, 1948, **55** (sez. prat. 1109).
2. Benhamou, E., Zermati, M., Assus, A. *Ann. Méd.* 1948, **49**, 499.
3. See Stats, D., Wasserman, L. R. *Medicine, Baltimore*, 1943, **22**, 363.

Toxicity of New Insecticides

SINCE we last commented on this subject,[1] a great deal of work has been done on the toxicity of the modern synthetic insecticides. STAMMERS and WHITFIELD [2] for example, have indicated that, used as an insecticide, D.D.T. is harmless to man and animals, but that risk to life may be incurred by unskilled formulation, by the use of unsuitable solvents, or by misapplication; and they emphasise the need to investigate the possibility of cumulative effects of storage in milk and in the tissues of sheep and cattle.

There are wide differences in the capacity of the various insecticides to produce injury through a single dose by mouth. As LEHMAN [3] has pointed out, the mean lethal dose ranges from 12,800 mg. per kg. body-weight for piperonyl butoxide to 2 mg. per kg. body-weight for tetraethyl-pyrophosphate (T.E.P), while D.D.T. comes roughly midway with a lethal dose of 250 mg. per kg. Thus the ratio is T.E.P., 125 : D.D.T., 1 : piperonyl butoxide, 1/50. The organic phosphate compounds and nicotine are extremely poisonous and rapid in action; the lethanes and thanite, while not so dangerous, have a rapid effect, producing collapse and death within a few minutes; while the chlorinated hydrocarbons, which include D.D.T., come next, with chlorinated camphene the most toxic, followed by the gamma isomer of benzene hexachloride (B.H.C. or 'Gammexane') and chlordan. The remaining compounds, including the pyrethrins and the insect activators N-propyl isomer and piperonyl butoxide, have so low an order of toxicity that there seems to be little

1. *Lancet*, 1945, **i**, 248.
2. Stammers, F. M. G., Whitfield, F. G. S. *Bull. ent. Res.* 1947, **38**, 1.
3. Lehman, A. J. *Bull. Ass. Food Drug Officials*, 1948, **12**, 82.

risk from the ingestion of a single dose. The toxicity of 'Rotenone' varies greatly with species, but according to LEHMAN [3] no cases of poisoning have been reported in man.

The possibility of poisoning through the skin is particularly important to manufacturers and in connexion with spraying operations. STAMMERS and WHITFIELD have found that even gross exposure for many months to a 5% D.D.T./kerosene spray had no ill effects. "Neither of the writers can recall an occasion when the men did not return from a day's operations soaked to the skin with the 5% solution." On the other hand LEHMAN sees risk in multiple exposure to 9 g. per day, which is considerably less than that observed by STAMMERS and WHITFIELD. It is noteworthy that, with the exception of 'Parathion' and nicotine, all the insecticides that LEHMAN tested were more dangerous to handle in solution than as a wettable powder or as a dust. Even more important, repeated exposure increases the hazard to as much as 200 times that of a single exposure. Unfortunately, with almost all the insecticides tested, skin irritation was only slight to moderate, and thus gave little or no warning of impending danger. In the case of the organic phosphates this blandness towards the skin is especially disturbing; and the same group carries an additional hazard in that experiment suggests that a small drop of undiluted T.E.P. in the eye might prove fatal to man. Another serious possibility in dealing with some of the insecticides is that excessive quantities will be absorbed through the lungs as aerosols. STAMMERS and WHITFIELD, using D.D.T. continuous-phase aerosols under conditions of normal and supranormal insecticidal control, found no evidence of toxicity in man or animals, even with exposure up to three months, and this has been confirmed by laboratory workers using continuous-phase aerosols. People have now been exposed for upwards of three years to concentrations many times heavier than those in normal use, without ill effect. Goats similarly exposed have shown no symptoms, and we understand that bio-assay of their milk also gave negative results. But, if D.D.T. is apparently safe, very much less is known of the effects of many of the other insecticides in aerosol form; the possible hazards of chlordan, chlorinated camphene, benzene hexachloride, and the organic phosphates—to mention a few—can only be surmised.

Chronic poisoning can be incurred by eating vegetables and fruit contaminated by spray residues, and meat and milk from cattle that have fed on sprayed pasture or silage. Preliminary data suggest that there is little relation between acute and chronic toxicity: thus a rat cannot be killed by a single dose of gammexane, however large, yet it becomes grossly poisoned when fed with it, over a period, in concentrations as low as 10 p.p.m. On the other hand rats can safely ingest in the course of twenty-four hours a quantity of chlorinated camphene compound which would kill them in a single dose. The risk to man and animals from feeding on plants treated with systemic insecticides (in which the chemical is absorbed through the root system and insects feeding upon the plants are poisoned via the sap) is at present unknown, and great care will have to be exercised in their use. The translocation of parathion in plants, reported by LEHMAN, creates a new danger comparable to that of the systemic insecticides. Once absorbed by the human body, from any source, the toxicity of an insecticide will of course partly depend on its distribution in the tissues. Thus D.D.T. is stored in body fat at a level of from 4 to 10 times that of the dietary intake, while with gammexane the balance is about equal; but gammexane is said to have appeared in brain tissue—a finding unknown with D.D.T. Like the other chlorinated compounds, D.D.T. is also secreted in milk.

It seems fair to say that at present D.D.T. and gammexane, which are by far the most popular insecticides, are the safest under normal conditions of pest control by experts; but the cumulative effect of small doses has not yet been finally established. D.D.T. aerosols appear to be safe when used with reasonable intelligence. While the toxicology of all new preparations must be studied before they are brought into general use, it is well to remember that D.D.T. and gammexane are no more poisonous—and sometimes less so—than many of the older insecticides, fungicides, bactericides, and general antiseptics; examples are paris green, sodium fluoride, nicotine, hydrogen cyanide, the copper fungicides, and many of the more powerful antiseptics. The least toxic is not necessarily the safest, for large quantities may have to be used to control the pest.

The Budget and the N.H.S.

THE Chancellor's defence of his Budget was summarised in a single sentence. "The community as a whole," he said, "will enjoy extra benefits this year in extended social services and defence measures, and cannot, therefore, have them over again in the form of remission of taxation." He would be the last to fall into the error of supposing that the whole cost of the National Health Service is an addition to national expenditure; but the fact remained that hospital and medical services previously financed by the citizen as philanthropist or fee-payer now have to be financed from compulsory contributions and taxes. The strain thus thrown on the Exchequer led Sir STAFFORD CRIPPS to make the following significant statement:

> "There is . . . a very good argument for imposing some special charge or tax in connexion with the health services, both to help to finance them and to bring home to people generally the simple fact that they have to be paid for out of taxation. It is argued, with some force, that this might help to make people more economical in their use of the services. But, on the whole, I have come to the conclusion that we should await the outcome of another year before taking any such action, and I hope that there will be such economy in the use of the services as to make it unnecessary."

Actually there might be considerable advantages if the money for the National Health Service—or possibly for all the social services together—were raised separately: this practice would help to take these services "out of politics" and give them a degree of immunity from economy campaigns. Meanwhile it is clear that the Chancellor will not be readily persuaded to provide more than the £259,727,600 needed from the taxpayer to meet the estimated cost of the N.H.S. in the coming year (£352,324,600), and a Treasury circular says firmly that "except where necessitated by some special circumstances, for example a major change of policy, supplementary estimates will not be allowed." We trust that this will not be put forward as a reason for postponing the very necessary modification of the initial arrangements for the payment of general practitioners.

Annotations

A VENOUS SHUNT FOR MITRAL STENOSIS

Lutembacher's syndrome, as was indicated in our leading article of April 2, is the combination of mitral stenosis with an atrial septal defect.[1] With such a defect the acute attacks of pulmonary œdema and hæmoptysis commonly associated with mitral stenosis do not occur, because the increased pressure in the left auricle is transmitted through the defect to the right side of the heart; and the usual cause of death is right-sided failure. Moreover, the onset of auricular fibrillation is later in these cases than in those with mitral stenosis alone.

These observations led E. F. Bland, of Boston, to consider creating a similar shunt in patients with extreme mitral stenosis but good heart musculature who succumb from high pulmonary pressure—a state he terms "lung failure" in contradistinction to heart-failure. Since the heart, and especially the rheumatic heart, tolerates surgical intervention poorly, it was desirable that the shunt should be extracardiac. The surgical solution to this problem was provided by R. H. Sweet,[2] who in March, 1948, first anastomosed the azygos vein to the dorsal segment branch of the inferior pulmonary vein.

The patient was a girl of 17 who some years previously had contracted rheumatic heart disease. For nearly two years past she had suffered from attacks of severe orthopnœa and dyspnœa, mostly at the time of her menstrual periods; and during one of these attacks she had been admitted to hospital almost moribund with pulmonary œdema. On readmission to hospital she had clinical signs of a very tight mitral stenosis in a heart which was otherwise good and only slightly enlarged. The stenosis was so great that the added burden of increased blood-volume accompanying her normal menses was sufficient to precipitate an attack of pulmonary œdema.

The operation, which was not unduly difficult, served to show that a patient with such a lesion as this might safely undergo thoracotomy. The pressure in the left auricle was determined by introducing a needle into a pulmonary vein; this gave a water-manometer reading of 47 cm.—a figure at least four times the normal. In this operation special care has to be taken to avoid traumatising the pulmonary vessels, which are extremely tense with blood. Passive congestion in the lung segment deprived of its venous drainage, proved only transient. The dorsal-segment branch of the inferior pulmonary vein was divided as close to the right lung as possible. The azygos vein was then ligated and its distal end was anastomosed to the pulmonary vein by the tube method described by Blakemore and Lord.[3] At the end of the operation blood could be seen pulsating vigorously into the azygos vein right up to its junction with the superior vena cava. Convalescence was uneventful, the patient getting out of bed on the third day. So far, the operation appears to have been a success, since no further attacks of pulmonary œdema have accompanied the menstrual periods.

Sweet has performed this operation on 5 occasions; 4 of the patients show some improvement, and there has been 1 death. The patient who died had a high temperature after operation, with an increased blood-sedimentation rate; and the response to aspirin strongly suggested a recrudescence of her rheumatic fever. At necropsy a clot was discovered in the anostamosis; and this bears out what is probably the main criticism of the operation—namely, that it is a venous anastomosis. Arterial anastomoses are easier to construct and will stay patent, but with anastomoses between veins thrombosis is a likely complication. However, in these patients with mitral stenosis there is a big pressure gradient across the shunt. We understand that in the one case so far submitted to cardiac catheterisation after operation there was no substantial increase in the oxygen content of the blood in the superior vena cava.

This venous shunt represents a real advance, but it is suitable for only a small proportion of those suffering from severe mitral stenosis; and with it there is always a risk of reactivating an old rheumatic infection, which may have been apparently dormant for years.

1. Bedford, D. E., Papp, C., Parkinson, G. *Brit. Heart J.* 1941, 3, 37.
2. Bland, E. F., Kelley, R. M. et al. *Amer. Practit.* 1948, 2, 756.
3. Blakemore, A. H., Lord, J. W. *J. Amer. med. Ass.* 1945, 127, 685.

CHILD AND YOUTH WELFARE THROUGHOUT THE WORLD

SOME of the non-political duties that the League of Nations used to perform have been taken over by the United Nations; among these is the publication of an annual report on child and youth welfare in various countries. The first of a new series [1] of reports on the progress of these services contains information sent in by 32 countries. Not all the reports are comparable, partly because they do not all cover the same ground and partly because standards range widely. Nevertheless it is interesting to note that the pattern of maternity and child-welfare work which this country helped to set out is being largely followed throughout the world, and that lately many of our views on the care of school-children and young people, deprived children and delinquents, are also gaining wide acceptance.

It is inevitable and right, however, that every country should interpret these services in its own way; and that sometimes public opinion, sometimes custom, and sometimes geography should influence the pattern. In Queensland, Australia, for example, an expectant mothers' correspondence service was established in 1944; this sends serial letters to expectant mothers in remote country districts, answers requests for special advice, and posts instructive booklets and clothes patterns. A "maternal and child railway car"—an ambulant child-welfare centre—journeys widely round the State, serving small towns and stations. In France, where children, and especially infants, suffered heavily from cold and hunger during the occupation, a unique service of wet nurses has been developed. Groups of wet nurses are enrolled in each area, and are trained for their duties and supervised by doctors. They serve either nurseries or private families, and the results, especially with State wards (many of them abandoned illegitimate children) have been so good that the establishment of centres was made compulsory in 1943. Some countries have established milk banks, and many—including Denmark, New Zealand, and New South Wales—have schemes to enable the unmarried mother to keep her child with her and to earn enough to rear him; in both these respects we are relatively backward, for we have very few milk banks, and our schemes to help the unmarried mother are inadequate and patchy. Family allowances have long been given in France and Belgium, and many countries besides our own have now followed suit.

Care of the deprived child varies, some countries relying chiefly on institutional care, others favouring foster care. The payment made to foster-parents is in some cases much more generous than is customary with us: in South Africa, it is stated, "specially generous grants are paid on behalf of children placed in this way,

1. Annual Report on Child and Youth Welfare. United Nations Department of Social Affairs, 1948. Lake Success, New York, U.S.A. H.M. Stationery Office. Pp. 236. 12s. 6d.

differentiation being made between normal children and those who present special problems of adjustment." This practice deserves attention, for though it may not be desirable to pay foster-parents on a scale which excites cupidity, it is right that the child's expenses should be fully covered, and perhaps that we should recognise that care of a difficult child is more exacting—and sometimes more expensive—than care of a normal one.

Treatment of delinquents is still very uneven; and our own system of children's courts, probation, remand homes, and approved schools, though far from perfect, is as promising as any. It is unfortunate, however, that the article contributed from the United Kingdom is largely a list of recent legislation and statute references, which gives no live picture of what is going on in our very lively social services. In Canada, the "juvenile and family courts" have proved their worth; these, while retaining the legal status of juvenile courts, have power to deal with a wide variety of family problems.

In our own country the State and the voluntary agencies share the work of maintaining social services for the child, though the State is accepting more and more responsibility. Other countries sometimes follow the same joint system and sometimes have a bias towards either State or voluntary care. In the Netherlands, for example, the government merely supervises, advises, and stimulates the voluntary bodies, to which it grants subsidies. Except in the large towns, social services are run mainly by the non-sectarian "Green Cross Society" and the Roman Catholic "White-Yellow Cross Societies." It would have been interesting if Russian experience could have been set alongside for comparison. The volume is otherwise an instructive Grand Tour of the world.

THE SEVERELY DISABLED ADOLESCENT

In Great Britain physically handicapped children with good wits generally get a fair start nowadays. But the intelligent child who is too severely disabled to attend a special school or to gain admission to a residential home not only gets a poorer start but has much worse prospects when he is grown. Nothing awaits him but a bed in a chronic ward, the company of old sick people, and a life almost completely devoid of interest and hope.

Some years ago the Shaftesbury Society, working with the Central Council for the Care of Cripples, opened a residential school at Hinwick Hall, Wellingborough, for 46 boys too seriously handicapped to be accepted in existing homes, and later the society opened a similar school for 45 girls at Malmesbury. Hinwick Hall receives boys of normal intelligence, between the ages of 10 and 16—cases of severe infantile paralysis, paraplegia with or without incontinence, spina bifida, hydrocephalus, cerebral diplegia, muscular dystrophy, osteogenesis imperfecta, renal dwarfism, and similar gross disorders. Some of the boys admitted have proved to be highly intelligent—well above the average—and have made good use of the excellent education offered at the school. Several have now reached and passed the age of 16, and the problem of what to do with them next has caused the society the greatest anxiety. In a few cases the Ministry has given permission for boys to be retained till the age of 19, but this has merely postponed the decision. A few can go home; but even where the home is good and the parents are willing, the care of these young people is work for skilled nurses. They must often be lifted, washed, helped on and off bed-pans, or given the assiduous care which alone can make life bearable for the incontinent. Their only hope of getting such care, or of getting something approaching it, is at present in a chronic ward. This has always been the fate of intelligent severely disabled adults; but these young people have the further trial that their minds have been trained to a relatively high educational level, and they need the companionship of educated and intelligent people of their own age. Inevitably, however, they must be scattered to the chronic wards maintained by their own local authorities. Even if they could be kept together their needs would only be half met. The society find that at 16 or 17 they become restive, unwilling to remain for ever at school, and anxious to be given some chance of earning a livelihood. This surely gives the key to the puzzle they present. It should be possible for them to graduate to another home—experimental at the outset—where occupational therapists could study their capabilities and suggest what remunerative work they might attempt. Many of the boys have, or could develop, special skills. One lad of 18 with osteogenesis imperfecta, permanently confined to a spinal carriage, has intelligence above the average, and draws well. It might be possible in such a case to provide work in lettering or sign-writing, and similar work might suit a boy with deformity of the feet and the right arm who is a good left-handed draughtsman. A boy with old infantile paralysis is good at his school work and above average mentally, but is becoming a behaviour problem because he has "had enough of school." His capacities would need special study because his disability makes him clumsy in writing. One or two boys have been fit enough to go on to ordinary training colleges for the disabled, but most are quite unsuitable physically.

These young people can only be a fraction of those in like case throughout the country; but even so the total number cannot be very great. Nevertheless their situation is so particularly cruel and hopeless that we feel special provision should be made for them, as soon as possible. Under the National Assistance Act and the National Health Act local authorities have permissive powers to further the interests of such people, as well as the duty of providing accommodation for them. Possibly an experimental training school could be set up by the Disabled Persons Employment Corporation; or, if a national undertaking of the kind is not possible just now, some of the great voluntary funds might perhaps be approached. The Shaftesbury Society does good work, but it is not a rich body, and would need the backing of others in this venture.

TREATMENT OF URÆMIA

In the last few years there has been increasing interest in the treatment of uræmia. One stimulus has been the clearer understanding, largely due to increased incidence, of a group of acute renal lesions termed by Lucke [1] the lower nephron nephroses, and typically seen with mismatched transfusion, ischæmic muscle necrosis, or mercury or other poisonings. A further stimulus is the development of dialysing methods—by the artificial kidney or peritoneal or intestinal irrigation—which enable the clinician to remove the retention products accumulated in the body owing to the failure of renal function.[2]

In acute renal failure the salient feature is necrosis of the lining epithelium of the distal convoluted tubules. Regeneration, which starts by the 8th day, may be expected to result in a continuous lining of debased epithelium by the 12th to 15th day. The ability of the kidney to excrete water returns with the regeneration of this epithelium; and if the patient can be tided over the anuric period renal function will slowly improve. Such manœuvres as decapsulation and splanchnic block cannot be expected to result in diuresis while the tubular epithelium is disorganised; it is in the removal of

1. Lucke, B. *Milit. Surg.* 1946, **99**, 371.
2. Alwall, N., Norvitt, L., Steins, A. M. *Lancet*, 1948, **i**, 60. Annotation, *Ibid*, p. 221.

retained products during this phase that the value of any dialysing method must lie. Since the report by Frank, Seligman, and Fine[3] of the first successful peritoneal dialysis of an acute recoverable renal failure a large number of such cases have been treated by this method. Isolated cases cannot be readily compared, owing to differing techniques; but the account, by these same authors,[4] of 18 cases treated in this way should enable us to form some opinion of the method. Of their 18 cases, 12 had what may be regarded as recoverable kidney lesions; and 4 of these survived. Among the 4 surviving patients oliguria continued for 15, 7, 9, and 10 days. With this procedure the risk of peritonitis is very real, and indeed the authors conclude that at present the method "should not be considered for routine clinical use."

The treatment of 10 surgical cases with renal insufficiency has been discussed by Coller, Campbell, and Ieb.[5] Whereas the first 5 died, the last 5 survived; and in this second group the management was based on the "three-phase" treatment outlined by Muirhead.[6] The first phase is that of the actual period of kidney injury, which may be due to shock, intravascular hæmolysis, or a circulating kidney poison; the second phase is that of acute renal failure with oliguria or anuria; and the third phase comprises the recovery diuresis, during which excessive electrolyte losses may occur. The treatment of the first phase aims mainly at preventing kidney damage. In the second, or oliguric, phase the intake of water is restricted to the amount lost, which in the absence of vomiting or diarrhœa is estimated to be between 1000 and 1800 ml. per day. The five fatal cases were all treated by "forcing fluids." Lattimer[7] concluded from a study of 33 cases of urinary suppression that restriction of fluid intake below 2 litres per day during the oliguric phase is the most important factor in survival; and further impressive evidence for this belief has been put forward by several workers.[8] Unfortunately some reports on dialysing methods do not fully set out the ancillary treatment; and some of the credit given to the dialysis may really belong to fluid restriction. Further expert evaluation of dialysing methods is needed before these can justifiably come into routine use.

DIET AND DENTAL CARIES

FOR the last thirteen years Prof. Guttorm Toverud, of Oslo, has been investigating, first at Skedsmo and later in Oslo itself, the effect of health supervision, and of advice on diet, in preventing dental caries. In a lecture delivered in London last January and printed in the *British Dental Journal* for April 15, he explained that supervision was started in the antenatal period and was continued until the child was 7 years old. Expectant mothers were instructed by a dietitian in the choice and preparation of food for themselves during pregnancy, and for their children during infancy and the pre-school years. Natural foods, such as milk, meat, fish, whole-wheat bread, and fruit and green vegetables, were recommended in an endeavour to raise the daily intake of calcium to 1·6 g., of phosphorus to 2 g., and of iron to about 20 mg. The addition of one tablespoonful of cod-liver oil daily provided at least 7000 I.U. of vitamin A and 700 I.U. of vitamin D; and 15–30 g. of brewers' yeast was given to most of the mothers, together with extra vitamin C when this was considered necessary. From the age of one month the children were given two teaspoonfuls of cod-liver oil daily, and from the age of six months whole wheat as a breakfast cereal. The mothers were instructed that as soon as the teeth erupted, the children should end their meals with a raw vegetable or with raw fruit. The recommended diet contained only small amounts of sugar and refined carbohydrates. Vitamin K was given to all women during the last three weeks of pregnancy, and no instances of cerebral hæmorrhage were noted in any of their babies. The effect of this régime was to lower the stillbirth-rate and the prematurity-rate; there were fewer cases of rickets, and alimentary anæmia was rare.

In Skedsmo, the ages of the children examined ranged from $2^1/_2$ to 7 years; figures obtained during the war years have been excluded because of the general decrease in the incidence of caries during this time.[1] In the $2^1/_2$–3 years age-group supervision effected a statistically significant reduction in the number of caries-affected children, and there was a probable significant difference in the number of carious teeth; children aged 3–4 years also showed a significant difference in the number of carious teeth; but in those aged 4–7 years, the difference between the figures before and after the health supervision was not statistically significant. Unfortunately there has been a rapid increase in the incidence of caries in all the age-groups, especially the eldest. Similar results were obtained in Oslo; here the children attended from birth onwards, and the figures suggest that in pre-school children health supervision has the greatest effect when applied during the mineralisation period. Toverud does not believe it possible to name the factors responsible for this improvement in dental health, but he emphasises the importance in prophylaxis of eating natural foods and of restricting sweet foodstuffs; for, besides their action as a local factor, highly refined carbohydrates may lower good resistance built up during the pre-eruptive period.

Toverud's results are corroborated by Sognnaes,[1] who has analysed the war-time reduction of caries in European children. Surveying the period from 1909 to 1948, Sognnaes points out there was a definite decrease in the incidence of caries in the latter part of both world wars, and in the years immediately after; and also that there appears to be a delay of several years before the effect of war-time conditions on the teeth is observed. He has not discovered any uniform increase in the use of specific foods which could fully explain the reduction in the caries-rate, nor has he been able to show a real correlation between this reduction and lessened consumption of sugar; however, allowing for the time-lag, a correlation does exist. The lactobacillus count can be rapidly reduced by limiting the amount of sugar eaten,[2] but Sognnaes denies that this is the most important factor. He suggests that the improvement is brought about by the natural foods, which may actually contain a nutritional factor that benefits the teeth. In modern times it has been only during the two wars that the caries-rate and the consumption of refined carbohydrates have fallen towards the level of earlier days when caries was less commonplace than it is today.

AN impressive decline in European death-rates is recorded in the latest epidemiological and vital-statistics report from W.H.O. All but three countries now have a lower rate than in 1937–39. Among the countries for which data are available Rumania (21·1 per 1000) and Ireland (14·9 per 1000) had the highest rates in 1947. The Latin area of Europe, which before the war had rates ranging from 14 to 20, now has rates from 11 to 13 per 1000. The Netherlands still has the lowest rate in the world—8·1 per 1000 in 1947.

3. Frank, H. A., Seligman, A. M., Fine, H. A. *J. Amer. med. Ass.* 1946, **130**, 703.
4. Frank, H. A., Seligman, A. M., Fine, H. A. *Ann. Surg.* 1948, **128**, 561.
5. Coller, F. A., Campbell, K. N., Ieb, V. *Ibid*, p. 128.
6. Muirhead, E. E., Haley, A. E. et al. *Blood*, 1948, **3**, 101.
7. Lattimer, J. K. *J. Urol.* 1945, **54**, 312.
8. Humphrey, J. H., Avery-Jones, F. *Clin. Sci.* 1947, **6**, 173. Burnett, C. H., et al. *Surgery*, 1947, **22**, 994. Kugel, V. H. *Amer. J. Med.* 1947, **3**, 188. Strauss, M. B. *New Engl. J. Med.* 1948, **239**, 693.

1. Sognnaes, R. F. *Amer. J. Dis. Child.* 1949, **75**, 792.
2. Jay, P. *J. Amer. dent. Ass.* 1940, **27**, 393.

Special Articles

STUDIES OF CHILD GROWTH IN THE UNITED STATES

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DURING the six weeks following the 1948 summer seminar in physical anthropology, held in New York City under the auspices of the Viking Fund, the generosity of the Fund made it possible for me to travel round the United States visiting various centres where child growth is being studied. The warm hospitality with which I was received enabled me to learn a great deal about the work of these institutes, and this article is concerned to pass on as much of this information as space permits.

Nowadays studies of growth are referred to as either *cross-sectional* or *longitudinal*. Cross-sectional study means the measurement at one time of several groups of children, one group aged 5 years, another 6, another 7, and so on. Such cross-sectional studies, like heart-lung preparations and decorticate cats, have their uses, particularly in the preliminary stages of research, but they tell us nothing about how much any one child grows, or about the variability of growth increments from year to year. A longitudinal study, on the other hand, enrols a hundred children at the age of 1 year, say, and follows each of the hundred till the age of 18. Pure longitudinal series are hard to come by for obvious administrative reasons, and some studies are a mixture of longitudinal and cross-sectional: children enter at various ages, continue in the study 5 or 6 years, and then drop out. The advantages of longitudinal studies, and the number of them completed and in progress, are such that most workers, when they use the term growth study, mean the longitudinal, or largely longitudinal, variety. All those here described are longitudinal.

COMPLETED STUDIES

University of Iowa

The first study of this sort in the United States was made by Dr. B. T. Baldwin, an educational psychologist, and published in 1914. In 1917 Dr. Baldwin was made director of the newly formed Iowa Child Welfare Research Station, of the State University of Iowa, and initiated anthropometric measurements as part of his routine study of the children attending the station. In 1921 he published his classical monograph, now unfortunately out of print, the Physical Growth of Children from Birth to Maturity as vol. I, no. 1, of the *University of Iowa Studies in Child Welfare*, a monograph series which is still one of the prime sources of information on child growth.

University of Harvard

Most of the older studies were initiated by schools of education, with emphasis laid on intelligence tests and scholastic performance as well as physical growth. In 1922 the well-known Harvard Growth Study began, directed by Professor Dearborn, of the Graduate School of Education. In sheer bulk this project far outdoes anything else in the history of growth studies. Measurements were made every six months of a group of school-children followed from the age of 5 years to maturity. The original group numbered no less than 3592, and at the end of twelve years, when the study closed, 970 were left. In 1939 all the original data were published; hence more or less complete records on nearly 1000 children are available. This study is mainly noteworthy, however, for providing the material for the masterly analysis of growth at adolescence by Dr. Frank Shuttleworth, whose papers will be found in the Monographs of the Society for Research in Child Development.

University of California

The Institute of Child Welfare, University of California, was founded in 1927 and is directed by Prof. Harold Jones, a psychologist. It houses three separate growth studies, each of which ceased collecting data a short time ago, though more publications from them can be expected for many years yet.

(1) The Berkeley Growth Study, run by Dr. Nancy Bayley, initially had some 30 boys and 30 girls at birth, of whom 20 of each sex remained with the study till maturity. 22 physical measurements were taken at the usual intervals (monthly the first year or so, then three-monthly for a few years, then six-monthly), with front-, side-, and back-view photographs, radiograms of hand and knee, and a considerable number of psychometric tests. Several of Dr. Bayley's papers will be found in *Child Development*.

(2) The Child Guidance Study, directed by Dr. Jean Macfarlane, was mainly a psychological and sociological study, with detailed records of behaviour and attitude of children and parents for some hundred boys and hundred girls.

(3) The Adolescent Growth Study concerned some 70 boys and 70 girls followed from the age of 9 years to that of 17. Measurements were made and photographs taken, but this study is chiefly remarkable in that it was deliberately physiologically oriented, under the direction of Dr. Nathan Shock. Dr. Shock's papers on the relation of adolescence and menarche to blood-pressure, basal oxygen consumption, heart-rate, exercise-tolerance tests, and creatine excretion will be found partly in the usual growth journals already mentioned and partly in the *American Journal of Physiology*. In addition a monograph has been published by Dr. Anna Espenchade on motor performance in adolescence, and a book by Dr. Harold Jones based on longitudinal records of strength and associated physical data is now in the press, and another by Dr. H. Stolz on adolescence in boys is awaiting publication.

Western Reserve University

The Brush Foundation Study at Western Reserve University was begun in 1931, ceased in 1942, and was directed by Prof. Wingate Todd, an anatomist and physical anthropologist. It had an enrolment second in size to the Harvard Growth Study, of 575 boys and 484 girls, but was only semi-longitudinal; the children entered at various ages, and on the average continued only $4^1/_2$ years with the study. The total age span covered from 3 months to maturity. No less than 25 anthropometric measurements were taken, besides radiograms of the hand, foot, elbow, knee, and shoulder. These pictures were the basis of the Todd standards for skeletal maturity, which are perhaps, in their revised edition, still the best known of the various methods of assessment of skeletal maturity available to pædiatricians. In the same department was housed the Bolton Study of craniofacial development, in which, among other things, lateral radiograms of the head were made, which have been used by Dr. Earl Count in 1942 and Dr. Carl Francis in 1948 for studying the growth of the skull and the pituitary fossa respectively. Both these papers are in *Human Biology*, another journal which carries a considerable proportion of papers on human growth.

STUDIES IN PROGRESS

Having now mentioned the main, though by no means all, completed growth studies, we will turn to four chief projects which are still in progress, and likely to remain so indefinitely. Three of the studies in progress are directed by pædiatricians—the emphasis has swung in this direction in more recent years—and the fourth is the Iowa Child Welfare Research Station, which still continues a programme of physical measurement, in addition to psychological studies and some physiological ones.

University of Iowa

Dr. H. V. Meredith is now in charge of physical anthropology, and at present is engaged in two projects. A fairly extensive series of anthropometric measurements is being taken at six-month intervals from the age of 4 years to maturity in a series of children who, it is hoped, will yield eventually 75 of each sex followed uninterruptedly. Particular emphasis is being laid on accuracy of measurement, and all measurements are made by two observers whose figures are checked if they do not agree to within established standards of tolerance. In addition Dr. Meredith is collaborating with the staff of the Dental College in a study of facial growth in about the same number of children, using radiograms, direct measurements, casts, and standardised photographs.

University of Colorado

The Child Research Council of the University of Colorado, at Denver, was founded in 1927 and has at present 130 children coming from 88 families. About 6 new children are enrolled every year, half or more of them being usually siblings of members. Members join as soon after conception as knowledge permits, and there are more mothers applying spontaneously on their behalf than can be accommodated. The earliest members are now mature, and second-generation children, those of enrolled parents, are beginning to enter. The morphological, physiological, and psychological growth of these persons is studied throughout their life, particularly during childhood, the emphasis being placed on the synthesising activity of "understanding the child himself as a whole integrated living organism."

The director of the study is Dr. Alfred Washburn, and the staff includes 8 M.D.s and 6 PH.D.s or the equivalent. Relations with the medical school in the University (where the study has the title of Department of Human Growth) are closer than is the case with any of the other child-growth institutes. In the departments of anatomy, pathology, biochemistry, and clinical biochemistry one of the full-time salaried members of the Child Research Council staff works on a permanent basis; all child pathology is controlled by the C.R.C., and several members, including the director, actively teach on the pædiatric faculty. Recently an introductory freshman course covering the broad principles of human biology has been instituted in the medical school, and the C.R.C. has the responsibility for a quarter of it. The majority of publications have appeared in pædiatric journals, and are strongly clinically oriented.

At present some 20 anthropometric measurements are taken, with front-, side-, and back-view photographs. A very considerable amount of radiographic work, partly clinical and partly anthropometric, has been done by Dr. Marion Maresh. Growth of the limb bones, lungs, and paranasal sinuses is being studied, and the data on the lengths of humerus, ulna, radius, femur, tibia, and fibula are probably the most reliable for these dimensions yet assembled.

There is a considerable physiological programme too, embracing basal metabolism, blood-protein levels, hæmatology, electrocardiograms, reaction times, vital capacity, and an exercise-tolerance test. One of the members of the staff is a nutritionist and food-intake assessments are being made, together with some studies of blood-vitamin levels. There is an orthodontic study under a dentist's direction, and both mental testing of the familiar intelligence type and behaviour study and projective and psycho-analytic work under the direction of Dr. Benjamin.

Fels Institute, Antioch College

The Fels Research Institute for the Study of Human Development began in quite a small way in 1929, but it has continuously expanded since, until now it is by a considerable margin the largest of American growth-study institutes, in terms of physical facilities and its annual budget. This year the institute has moved into a new specially constructed building, Fels House, which like the old accommodation, is on the campus of Antioch College in Yellow Springs, Ohio. Fels House has 78 rooms, including a large biochemistry laboratory, several small and one large air-conditioned physiological laboratories with elaborate electrical room-to-control-room leads of the familiar conditioned reflex study type, a radiography room with ten different radiographic measurement set-ups arranged round a central track for the tube, two anthropometry rooms, medical and dental examining-rooms, several nurseries and observation rooms, a library, an auditorium, and (outside) an animal-house.

The study has some 210 enrolled children, from about 130 families, and aims to study them from fœtal life to maturity in the morphological, physiological, and behavioural fields, with particular emphasis on the borderlines between these fields and on the constitution and genetics of the children. The series includes 3 sets of triplets, 6 pairs of twins, and many siblings. About 12 new children are added every year, and about half of these represent new families. As in the University of Colorado study, no difficulty whatever is encountered in obtaining subjects. The director of the study since its inception is Dr. L. W. Sontag, and the staff includes 3 M.D.s and 6 PH.D.s with genuinely adequate secretarial and technical help.

The physical anthropology section, directed since 1943 by Dr. Earle Reynolds, in addition to the usual anthropometry and photography makes very extensive use of X rays for measuring. The usual type of films are taken of every part of the body every six months, and in addition from the age of $6^1/_2$ years onwards special films are made to delineate subcutaneous tissue, bone, and muscle. Eight areas of body and limbs are radiographed, small strips about 2 in. being taken, for example, across the greatest circumference of the calf. Publications have so far dealt with growth of the pelvis, tissue analysis of the calf region, seasonal factors in growth, physical changes at adolescence, methods for analysing growth progress, and biochemical-structural relationships. Dr. Reynolds intends very soon to publish a comprehensive account of the subcutaneous tissue in the various regions.

The physiological-biochemical programme is on a considerably greater scale than that of any other study. Dr. John Lacey, in charge of physiology, is chiefly occupied with cardiovascular, respiratory, and palmar-sweat responses to a stress of the cold-pressor-test type, with special relation to whether the different responses observed in different children are relatively constant for each child, or changed by ageing or by environmental changes. Studies of fœtal reactions are also being made. Dr. Leland Clarke, in the biochemistry section, is concerned chiefly with creatine, creatinine, cholesterol, blood enzymes, and steroid metabolism, and has been developing methods of micro-analysis appropriate for obtaining determinations of several different chemicals from a single finger-prick on a diffident child. Nutritional studies are being made, and there is a large psychological-sociological department under Dr. Alfred Baldwin.

University of Harvard

The Centre for Research in Child Health and Development at the School of Public Health, Harvard, was opened in1930 under the direction of Prof. Harold Stuart. The arrangement of the centre and its methods have been described in the Monographs of the Society for Research in Child Development in 1939, and some of the results in later numbers of the same and other journals. The original plan was to obtain complete longitudinal records

from birth to maturity in 100 boys and 100 girls. By 1937, 224 out of an initial 296 children were still being examined at regular intervals, and further recruitment was stopped. From 1941 to 1944, however, the work of the centre was considerably disrupted and for 1½ years practically ceased. About 150 of the original group of children are still under study, the oldest now aged 17 years and the youngest about 12 years. The staff of the centre has varied from time to time, but before interruption was about 4 M.D.s and 2 PH.D.s, besides some part-time and consultant helpers.

The centre has always been strongly medically oriented, and follows physical growth, nutrition, health history, and behaviour. Eighteen anthropometric measurements with photographs, and radiograms suitable for the differentiation of subcutaneous tissue, muscle, and fat, have been taken from birth. These radiograms constitute the most complete set over this age range ever assembled, but as yet only the calf plates have been fully analysed. Standards of skeletal maturity based on these films are being prepared and are soon to be published. Detailed dietary histories are also available, both of the mother during pregnancy and of the child followed from birth to adolescence.

Though little physiological work has been done in the centre itself, various outside investigators in the Boston area have used these children for studies on basal oxygen consumption, creatinine metabolism, hormone excretions, and the like. The centre also participated in the morphological and physiological work involved in the now concluded growth study of the psychological clinic of Harvard University, the results of which were published by Dr. R. N. Sanford and his associates in 1943. This latter study is mainly psychological but includes considerable data on the interrelations of morphological, physiological, and psychological variables.

CONCLUSION

These are a few of the main things going on in the main growth studies in the United States: the reader should not imagine that he has obtained from this short article a detailed or complete view of all that is in progress. A longer report, which lists 7 continuing and 9 now closed studies, will be found in the 1947 *Year Book of Physical Anthropology*, but even there the ground is but partly covered. The volume of this work and the excellence of a large part of it is an inspiration and a guide to those here who are in a position to emulate and enlarge on it; a source of many data for those whose interest is not matched by their facilities for collection of their own figures; and a stimulus to all biologists of whatever variety who realise the overwhelming importance of form, and the seemingly overwhelming problems raised by it.

I want to thank most sincerely all the investigators I visited for the time and trouble they took to show me all the workings of their laboratories, and particularly Dr. Carrol Palmer, Dr. Paul Sawin, Dr. Frank Shuttleworth, Dr. Edith Boyd, Dr. Howard Meredith, and Dr. Earle Reynolds for their hospitality.

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MALIGNANT DISEASE OF FEMALE PELVIC ORGANS

CONFERENCE AT NEWCASTLE

A Conference on Gynæcological Cancer, organised by the departments of gynæcology and radiotherapy of the Royal Victoria Infirmary and the Medical School, King's College, Newcastle-on-Tyne, was held on April 1–2, attended by 133 gynæcologists and radiotherapists.

CARCINOMA OF THE CERVIX

Prof. E. FARQUHAR MURRAY (Newcastle) presided when Mr. VICTOR BONNEY gave the introductory address published on p. 637. At the conclusion Mr. Bonney received an ovation from more than 250 people who had gathered for the occasion. At the evening session Sir WILLIAM GILLIATT, F.R.C.O.G., took the chair.

Mr. MALCOLM DONALDSON (London) spoke of the improvement in the results of the radiological treatment of cancer of the cervix; but he said that, whereas there had been a marked improvement in cases in stages 1 and 2, the figures for stages 3 and 4 remained the same as ten years ago. Even with the improvement, about half the cases in stages 1 and 2 did not survive five years. He was now convinced of the value of the Glucksmann-Spear technique of estimating radiocurability, and he advocated the use of the Bonney-Wertheim operation in those cases which were not radiocurable. In stages 3 and 4 a better distribution of radiation was required for adequate treatment. He described the Neary applicator and mentioned some of the difficulties encountered in its use.

Mr. GEORGE BLOMFIELD (Sheffield) gave a detailed account of the uses of radium and X rays in cervical carcinoma and described his own cervical applicator.

Mr. DAVID CURRIE (Leeds) said that his interest in the subject had been aroused at the beginning of the war, when radium was difficult to obtain because of the risk of air-raids and he was consequently forced to use surgery. He had performed Wertheim's operation 71 times, without an operative death, and 2 of his patients already had ten-year cures. He selected cases in stages 1 and 2, and most of his patients received preliminary irradiation.

In the discussion that followed, both Mr. BONNEY and Mr. DONALDSON called for greater coöperation between gynæcologists and radiotherapists, and Mr. JOHN THURGAR (Newcastle) pointed out that gynæcologists and radiotherapists in Newcastle had collaborated very closely for many years now. Various speakers indicated their desire for "individualisation"—the employment of the most appropriate methods of treatment in each case.

Mr. STANLEY WAY (Newcastle) announced that, in view of criticisms of the accuracy of staging, made to him by Mr. Bonney, he had invited two gynæcologists and two radiotherapists to examine four untreated cases of carcinoma of the cervix under anæsthesia, and to stage them. Except in one case, not more than two observers had agreed on the staging, and when the description of the extent of the tumour was examined there was even greater disagreement.

Sir WILLIAM GILLIATT, in concluding the discussion, said that he was glad to see that the need for greater

team-work was being realised. He thought that the new radiotherapy advisory committee set up by the Minister of Health would facilitate coöperation.

OTHER TUMOURS

On April 2 when Sir WILLIAM FLETCHER SHAW (Manchester) presided, Mr. ALAN BREWS (London) spoke on *chorionepithelioma*. He cautioned his hearers on the interpretation of the Aschheim-Zondek reaction and pointed out that positives in a dilution of 1 in 100 occurred about the 60th day of normal pregnancy and even later in multiple pregnancy. But when the diagnosis of chorionepithelioma was established radical treatment was necessary, even though the patients were very young or had remote metastases, provided (in the latter case) that the patient's general condition was good. He showed that metastases sometimes disappear spontaneously.

Dr. ALFRED GLUCKSMANN (Cambridge) spoke of the rôle of the tumour bed in the *treatment of squamous carcinomas by irradiation*. He said that the tumour bed at the primary site played a major part in the response of the tumour to irradiation. The stromal reaction induced by the tumour at the site of its metastases was essentially the same as that occurring at the primary site, and in carcinoma of the tongue it had been found that the response at the primary and secondary sites, when both were full irradiated, was essentially the same.

Mr. HARVEY EVERS (Newcastle) read a paper on the clinical aspects of *malignant ovarian tumours*. He showed that 82% of all these tumours occur after the age of 40 and said that when an ovarian tumour was found after this age there were almost equal chances of its being benign or malignant. He thought that tumours at such an age might well be treated radically by hysterectomy and removal of both ovaries even if they did not appear malignant. He pleaded for a wider adoption of the method of staging these tumours, so that uniformity between clinics could be achieved. He thought that postoperative deep X-ray therapy should be employed experimentally until there was definite evidence of its value or otherwise.

Dr. C. W. TAYLOR (Birmingham), in a paper on the pathology of malignant ovarian tumours, called for a simpler classification than those existing at present, which, though perhaps histologically accurate, were rather bewildering to the clinician. He discussed the bearing of the histological picture on the ultimate results and recorded an over-all five-year survival-rate of 15·5%. He described his method of grading on which prognosis could be based, and said that the best results could be expected in the cystic type of tumour.

DEMONSTRATIONS

At a clinical demonstration given at the Queen Elizabeth Hospital, Gateshead, by members of the staffs of the Newcastle hospitals, under the chairmanship of Sir EARDLEY HOLLAND, unusual and interesting specimens were shown by Messrs. EVERS, STABLER, SNAITH, ARTHUR, THURGAR, and WILLIAMSON and Drs. TROUNSON, RANNIE, and GLUCKSMANN. Mr. Thurgar and Dr. Farmer described and showed a radium applicator for treating carcinoma of the vagina, and Mr. WAY showed some of the late results of the extended radical operation for carcinoma of the vulva and some examples of massive surgical resection for advanced pelvic cancer, including extirpation of a recurrent ovarian carcinoma with excision of the rectum, and two cases of carcinoma of the cervix successfully treated by Wertheim's operation with total cystectomy.

The conference concluded with a visit to Durham, where members were shown over the Cathedral by the Dean, and a dinner was held in the great hall of Durham Castle.

THE BLOCK AND THE STUDY-DAY

AN APPROACH TO STUDENT STATUS FOR NURSES

GOOD training attracts good students. The steady and increasing flow of young educated women into the social services and physiotherapy can be partly explained by the fact that training for these callings is stimulating, well planned, and devised entirely to fit the student for later practice. In nursing, on the other hand, training is subordinate to the needs of the hospital; and as long as we continue to nurse our sick very largely by student-power it will remain so. All hospitals pay lip-service to the ideal of student status for nurses; and a few even try to achieve it. This is not easy to do, for nursing is a practical art, and the custom of giving the student plenty of experience with patients has more than convenience to recommend it. Moreover, recent studies have shown that trained staff, too, are scarce in hospitals; nurses who have taken their qualification do not jostle each other for hospital appointments. There is thus little chance at present of increasing the ratio of trained staff to students.

The joint burden of theory and practice, however, has always lain heavily on students, and liberal-minded matrons nowadays try to ease it in one of two ways—by the block system, or by the weekly study-day. The advantages and drawbacks of these two methods deserve consideration, for in some ways they rival each other.

A TERM OF THEORY

Good examples of the block system were described in the *Nursing Times* of April 19 and Nov. 6, 1947. In one of these, a large London teaching hospital, the student begins with 12 weeks in the preliminary training school, followed by a week's holiday; she then has 9–10 months in the wards followed by her first annual holiday, presumably of 3 weeks or a month; early in her second year she has a 6-week period (or block) of study only, and then continues with ward experience until she gets her second-year holiday; the third year *begins* with a 6-weeks' block, and shortly before her final examination she gets a last block-period lasting a fortnight. During the blocks nurses work a five-day week; so in the course of three years' training, they get 130 days free of ward work and dedicated purely to study. The *Nursing Times* says:

> "They are treated like students. They have breakfast at 7.20 and begin work at 8.30 A.M., finishing either at 4.30, 5.30, or 6 according to the programme, but having one afternoon free for shopping during the week. They have the weekend free from 12 on Saturday till Sunday night."

The second large general hospital has a similar system except that the blocks and holidays are arranged—and this shows that it can be done—so that the nurse always has a holiday before going on night duty, and is always on day duty or attending a block before she takes an examination. Counting the preliminary training school as a block, she gets 16 weeks of study in the first year, 8 weeks in the second year, and 8 weeks in her third year—160 study-days in all. In this hospital the nurse "on the block" breakfasts at 6.30 A.M. and goes on the wards from 7 to 8 A.M. She begins her study-day with a test paper at 8 A.M. and she finishes it at 5 o'clock in the afternoon.

In criticism of both schemes we must point out that students in no other discipline would be expected to begin a study-day so early; or to attempt a span of brain-work lasting 9 or 10 hours. University students usually reckon they have done a good day when they have completed 6 hours of brainwork. Again, though there are good arguments for keeping the nurse in touch with the wards during the block period, it is

wasteful to use her morning freshness on routine chores. The custom of sending her on the wards from 7 to 8 A.M. began in this hospital when staff were too few to manage the work of that busy hour. That reason no longer holds, but the custom is unfortunately maintained. The nurses would certainly benefit physically and mentally by getting an extra hour of sleep in the mornings of the block period, and perhaps also by having an hour's clinical work later in the day when it would make a refreshing break in their studies.

PRACTICE INTERSPERSED WITH THEORY

The alternative to the block system—the weekly study-day—also has much to recommend it, and again two examples may be quoted.

In a large London teaching hospital nurses spend 11 weeks in the preliminary training school, and then enter the wards. After entering the wards they have two courses of weekly study-days yearly, beginning in March and September. They get 16 study-days in the first year (two 8-week courses), 17 in the second year, 16 in the third year and 4 days in preparation for the final examination—53 days in all, or counting the preliminary training school, 108 days.

In the second example, a large general hospital, the preliminary training school course lasts only 8 weeks; this is a matter of principle: the matron believes that students learn more easily, and retain their keenness better, if they are taught only nursing measures in the preliminary training school, and are not taught anatomy and physiology until their curiosity about the structure and function of the body has been aroused by a little ward experience; and there is much to be said for this view. They have two 12-week periods of weekly study-days in the first year, in addition to the 8 weeks in the preliminary training school. In their second year they get one period of 8–10 weeks, and a like period in their third year. Study-days in the three years' course at this hospital thus range from 8 to 84—which compares poorly with the 130 or 160 days of nurses trained on the block system.

FROM THE STUDENT'S VIEWPOINT

The nurse allowed only 4 days to rub up her knowledge for the final must surely think enviously of the girl who gets a fortnight; while the average nurse—who gets no extra time at all—must think bitterly of both. When the vast area covered by the theoretical syllabus is considered, it is impossible to see how any ordinary young person could master it in 160 days, let alone 80; and this explains why examiners of nurses so often set difficult questions but mark them on a low standard: no other course is open to them.

The block system, since it keeps the nurse for some weeks out of the run of the tide in the wards, is said to divorce theory and practice. It is also difficult to arrange administratively, requiring more additional nurses than the weekly study-day and being altogether less flexible. If a nurse falls sick while taking a block period it is difficult to fit her in again to make up lost ground; but on the other system, the nurse can either make up the lost ground with the sister tutor, or join the next group when they are taking the lectures she missed. Moreover she remains in touch with her cases, and is even called upon to demonstrate one from time to time on a study-day. The whole week is the lighter for being broken by a study-day in addition to the day-and-a-half off duty; and matrons are somehow more humane about arranging the study-day than they are about planning the block.

In one of the hospitals quoted the nurses do not breakfast on their study-day till 9 or 9.30 A.M., and come to their first lecture at 10.30; they can even sleep out the night before if that happens to be their day off. Formal work ends at 6 P.M. and they have the evening free for private study. At the other hospital, study-day lectures begin at 9 A.M. and the day ends at 4.30 P.M. Thus the nurses get up later on two mornings a week (the day off and the study-day)—which is good for young people who may have contracted a sleep-debt. They also say they have a sense of continuous study with no cramming.

The drawback to the study-day system is that it only covers 8–16 weeks in the second and third years. Nurses questioned own that they wish it went on all the year round, but the various courses occupy 8 months of the sister tutor's year, leaving 4 months clear for the holiday seasons and for the time spent by students on night duty. Perhaps the solution would be to allow 2 study-days a week for selected short periods during the three years' course.

Whatever the rival merits of these two systems, they are both an outstanding advance on the still general custom of forcing the nurse to study in whatever odd moments she can find. They are a genuine attempt to give her some of the privileges of a student, and to offer young people entering the profession some of the status and consideration extended to those entering the medical auxiliary and social services. Headmistresses and others who know the young educated girl say that good training will always attract her. If matrons generally would adopt one or other of these systems—and do it in a realistic spirit, recognising the nature of the world we live in, and the girls they are seeking to attract—they might go far towards ending the grim situation in which shortage of student nurses has placed us.

REGIONAL HOSPITAL BOARDS

THE Minister of Health has made the following appointments to fill the vacancies caused by the retirement of a third of the members of the 14 boards in England and Wales. Out of 118 appointments so far made, 87 are reappointments of retiring members. There are still 8 appointments outstanding. Those now appointed will hold office till March 31, 1952. The names of members of the medical profession are shown in bold type.

NEWCASTLE REGION

Reappointed: Thomas Benfold, C.B.E., J.P.; E. F. Collingwood, C.B.E., J.P.; Alderman Alfred Cooper; **D. C. Dickson,** F.R.C.S.E.; John Foster; **William Fraser,** M.B.; Alderman J. A. Hutchinson; Robert Muckle.

New member: Rev. R. E. Robson. One further appointment still to be made.

LEEDS REGION

Reappointed: Alderman H. J. Bambridge, O.B.E., J.P.; Lawrence Crowther, O.B.E., J.P.; Miss M. F. Dykes, S.R.N.; **D. C. Muir,** F.R.C.P.; Prof. **Matthew Stewart,** F.R.C.P.; Alderman Arthur Sugden, J.P.

New members: A. F. George; **W. W. A. Kelly,** M.B., J.P.

SHEFFIELD REGION

Reappointed: Alderman C. F. Bowmer, J.P.; **J. W. Brown,** F.R.C.P.; A. W. Harrison; Lord Quibell, J.P.; Alderman Edward Sheerien, J.P.; **J. G. McCrie,** O.B.E., M.B.; Miss A. Wetherell, S.R.N.

New members: Councillor Mrs. Olive Deer; W. E. Jones; Alderman E. A. Armstrong.

EAST ANGLIAN REGION

Reappointed: Mrs. Hester Adrian, J.P.; C. R. Caselton; P. F. Dennard; **J. V. Morris,** M.B.; Colonel J. D. Portway; Miss J. G. Thompson, S.R.N.; Alderman Mrs. Mary Whitmore.

New member: H. Payne, J.P.

NORTH-WEST METROPOLITAN REGION

Members reappointed: **A. C. Morson,** O.B.E., F.R.C.S.; Miss Vera Dart; **Horace Joules,** F.R.C.P.; **H. E. A. Boldero,** F.R.C.P.

New members: M. Hackett; Miss M. L. Hall, S.R.N.; Mrs. Blofield; Alderman Mrs. B. A. Beaumont, J.P.

NORTH-EAST METROPOLITAN REGION

Members reappointed: Alderman C. E. S. Blackmore; Captain H. Brierley, O.B.E., M.C.; **Somerville Hastings,** F.R.C.S., M.P.; Alderman S. F. Johnson, J.P.; E. T. Neathercoat, C.B.E., J.P.; C. S. B. Wentworth-Stanley; C. C. Carus-Wilson, M.C.

New member: Miss Rootham, S.R.N.

SOUTH-EAST METROPOLITAN REGION

Reappointed: Alderman R. H. Burslem, J.P.; Dame **Barrie Lambert,** D.B.E., M.B., J.P.; Alderman Rev. Harcourt Samuel; **J. R. H. Turton,** F.R.C.S.

New members: T. W. Stigger; **H. C. Edwards,** C.B.E., F.R.C.S. Two further appointments.

SOUTH-WEST METROPOLITAN REGION

Reappointed: **P. H. Mitchiner,** C.B., C.B.E., F.R.C.S.; J. A. Tulk, J.P.; **J. M. Wyatt,** F.R.C.S., F.R.C.O.G.

New members: W. H. Tooes; Alderman H. Regan, J.P.; Mrs. M. Ormerod; D. Jackman, M.B.E., J.P. One further appointment.

OXFORD REGION

Reappointed: Prof. **A. D. Gardner,** D.M.; Alderman Mrs. A. Jenkins, J.P.; Miss R. R. Jolliffe, S.R.N.; P. C. Raffety, J.P.; **J. S. I. Skottowe,** M.D.; A. J. B. Selwood.

New members: F. Etherington; Mrs. French.

SOUTH-WESTERN REGION

Reappointed: **A. L. Candler,** F.R.C.S.; **R. E. Hemphill,** M.D.; Alderman J. Milton, J.P.; Miss R. C. Shackles, S.R.N.; **Samuel McClements,** M.R.C.S.

New members: Councillor F. A. C. Riddick; C. Rew; The Very Rev. **Garfield Williams,** O.B.E., M.B.; **N. L. Capener,** F.R.C.S. One further appointment.

WELSH REGION

Reappointed: **R. D. Aiyar,** F.R.C.S.E.; **A. H. Coleman,** O.B.E., F.R.C.S.E.; H. G. Davies, M.R.C.S.; Richard Davies; Alderman Richard Gronow; Mrs. H. Evans, J.P.; Prof. E. A. Owen; Mrs. E. Owen, S.R.N.; Rev. B. Waldo-Lewis.

New members: Alderman E. Williams, J.P.; Eugene Cross.

BIRMINGHAM REGION

Reappointed: **Norman Duggan,** F.R.C.S.; Major Cyril Hotchkiss, J.P. Prof. **H. F. Humphreys,** O.B.E., M.C., M.B., M.D.S.; Sir **Leonard Parsons,** F.R.C.P., F.R.S.; **J. J. O'Reilly,** M.B.; Alderman W. T. Smith, J.P.

New members: G. V. Grimshaw. Three further appointments.

MANCHESTER REGION

Reappointed: **Walter Briggs,** M.B., J.P.; Miss L. G. Duff Grant, R.R.C.; Sir Thomas Tomlinson, J.P.; Councillor T. Hourigan; Major E. F. Pilkington, J.P.; Alderman Joseph Eastham, J.P.

New members: Alderman T. H. Adams, J.P.; Alderman S. T. Marron, J.P.; Prof. **W. I. C. Morris,** F.R.C.O.G.

LIVERPOOL REGION

Reappointed: **D. Brown,** M.B., J.P.; Miss M. Jones, O.B.E., R.R.C.; J. F. Mountford; **D. R. Owen,** F.R.C.S.E.; Alma Parkin, J.P.; Prof. **H. H. Stones,** M.D., M.D.S.; Alderman David Plinston, J.P.; Ernest Smethurst, J.P.

New member: W. Gibbs.

In England Now

A Running Commentary by Peripatetic Correspondents

"You are a famous pianist," Mr. Ralph Slater told five sleeping figures at the Princes Theatre on April 4, "and you are giving a recital. The piano is there in front of you—go on, play." The young woman, the young man, the two elderly men, and the unmistakeable professional man turned to at once and gave of their best, as Uckridge used to say. Hypnosis is always fascinating, and I had never seen five people under at a time before. The most striking thing was the way in which differences of personality survived in these automatons. The girl—she turned out later to be an almoner at one of our teaching hospitals—played her imaginary piano with feeling and delight, enjoying the pleasure she was getting and giving, and enthralled by her own success. One of the elderly gentlemen, who told us later he was a civil servant, kept his hands to himself and waggled his fingers up and down; the other one ranged the piano wildly and enthusiastically. He was a printer of music, of some eminence, and a beautiful subject for hypnotism, accepting every suggestion with gusto. He was probably playing Rachmaninoff's prelude. The professional man—he proved to be a dentist—appeared to play rather well. The young man (he worked in a bank) gave us a series of powerful chords. The same sorts of differences appeared at every stage. When told they were three-year-olds crying for their mother, the girl, the young man, and the music-printer played the part quite passionately, while the dentist and the civil servant could barely manage an inhibited whimper. When told they had all been drinking bumpers of neat whisky, the dentist moved carefully and with great dignity, the girl seemed to get a violent headache, the civil servant looked troubled; but the young man and the music-printer danced and sang without embarrassment: they saw no harm in being merry, but clearly the other three found it disgraceful. Mr. Slater, whose slow delivery nearly put the audience to sleep for other reasons in the course of a very long evening, is adept at inducing hypnosis: at one point he had about twenty people asleep at once. He kept his five chosen subjects asleep for well over an hour, and put them to sleep again with a clap of the hands after he had roused them. He showed us all the classical tricks, including some amusing examples of post-hypnotic suggestion. He passed a lighted match under a sleeper's hand, stood on the stomach of a subject lying rigid between two chairs, and took a few rather cruel liberties with human dignity. On the whole he was considerate, however, and certainly he was competent. It was interesting to note how he picked his cases: the tough young man was needed for the rigidity demonstration, the pretty girl to be made to kiss her favourite film star, the professional man and the civil servant—both reserved and dignified—for prestige, and the music-printer because he was an asset to any performance, awake or asleep. But is there much to be said for making unconscious people behave foolishly in public? They ask for it, of course: they were all volunteers; and there is not the least doubt that they were strangers to Mr. Slater and genuinely hypnotised. I think I would rather see rabbits come out of a hat.

* * *

I have found a superb use for medical circulars, though it will doubtless make the child psychologists shudder: a promise of these coloured brochures will induce my small sons to finish their breakfast quickly when all else fails. Distribution requires the sagacity of a Solomon, but from experience I consider one picture of *Atropa belladonna* is roughly equivalent to a picture of a skeleton, clothed apparently in strands of red string, plus the portrait of a sleeping beauty. Lately, alas, breakfasts have tended to be protracted, and the reason, I find, is vitamins. There has been a spate of literature about them, and little else, and coloured but picture-free pieces of shiny paper will not get one mouthful of food swallowed the quicker. My children must have pictures, even if only of a spastic colon, and until manufacturing chemists once more turn their artists

on to flowers, or men (external or internal), I shall have to revert to the psychologist's "couldn't-care-less" method of persuasion.

* * *

The president of the section of medicine of the Royal Society of Medicine has recently examined the value of the anamnesis, in an exposition judicious if perhaps a little lukewarm. I know at least one aspirant to consulting practice whose experience in an examination has made him an unqualified enthusiast of its application. Approaching his long case with the stereotyped inquiry "what do you complain of?" or possibly, if he was a stylist, "of what do you complain?" he received the welcome information "I burn my fingers whenever I smoke a cigarette."

Nobody should be penalised for good luck, but surely in such an instance Dame Fortune is over-generous. To avoid the overwhelming advantage derived from mere interrogation, I suggest the insertion of the following advertisement:

WANTED.—A sufferer from syringomyelia who is deaf and dumb, or is able to simulate these disabilities. Remuneration at the rate of 15*s*. a day with lunch and tea and the guarantee of an interesting experience.

* * *

I have noticed that small delinquents, sent to me from the police-court to be certified fit for caning, often wear rubber bands round the wrists or ankles. I asked one what they were for, and after some hedging he revealed that the bands are to secure the booty of a successful pocket-picking hidden under sleeve or trouser leg.

* * *

May I add two peripatetic memories to your memoir[1] of George Cockroft of Middleham? One, in the hard winter of 1940–41, is of a scene reminiscent of the "Flight into Egypt" of our Sunday-school books. A doctor, mounted on a horse, riding into the compound of the Darlington Memorial Hospital, with, behind him, on the pillion, a nurse holding, somewhat precariously, a baby sewn up in a blanket. With the roads impassable for a car, he had ridden ten miles into the hills, collected the intussusceptive baby, together with the nurse, and brought them as far as Richmond. Failing to find motor transport readily, he continued his ride into Darlington—perhaps in the spirit of mild perversity which had enabled him to overcome so many difficulties of rural practice. It is good to record that the infant made a complete recovery.

The other memory is of an afternoon spent with him in the spring of the year when Dante, in his brother-in-law Matt Peacock's charge, won the Derby; together we went round the old Castle of Middleham, reviving its history, and inspecting relics that Cockcroft had himself dug up. Among them was Warwick the Kingmaker's enema syringe, with its male and female parts, made of leather—the latter with a long tubular nozzle, the former a bag holding about two ounces of oil. To make the injection this was rolled up as one rolls a tooth-paste tube. Later there was tea—Yorkshire cheese-cake, with (tell it not in Gath or war-time) real Wensleydale cheese. After tea, round the stables with Matt Peacock, looking at the two-year-olds and finishing with Dante. "Put your arm round his neck, Mum, give him a kiss, and he'll win Derby." She did, and he did.

Wensleydale has a medical tradition which must be difficult to live up to. The Cockcroft practice was already established when John Fothergill, the famous Quaker physician of the 18th century, was born there; and George Cockcroft had several first editions of his works. But the tradition is certainly maintained. Quoting Saintsbury's dictum that: "unintelligent acquiescence in opinion is not only dangerous, it is immoral," Cockcroft would add that as this was true of literary criticism, how much more should it be true of medicine. Perhaps the most distinguished practitioner in Britain lives and works in Wensleydale, and he, I know, would agree that he is but *primus inter pares* with his fellows in following Fothergill's example of faithful and enlightened service to the community.

1. *Lancet*, March 17, p. 504.

Letters to the Editor

THE GENERAL PRACTITIONER

SIR,—May I congratulate you on your leading article of April 2? It is high time that something was done to improve the standing of the general practitioner, but we very often find that the reverse is happening.

Supernumerary hospital posts are shortly to cease. How, then, is the demobilised Service medical officer, who has been denied clinical responsibility and has therefore failed to maintain professional skill, to re-equip himself for active practice?

Dr. Plesch makes several proposals regarding medical education. I agree that much of the useless theoretical knowledge should be jettisoned, but it would surely be ridiculous to shorten the undergraduate training-period, as he suggests. Much of the general practitioner's work is concerned with the donation of philosophy to his patients; and to make a man capable of this—among many other things—we must give him as long a training as is feasible. There is no doubt, much as I dislike compulsion, that the standard of medical practice would improve greatly if one year in resident hospital posts was made obligatory prior to registration.

As things stand, many students, and even more responsible people, tend to have less and less respect for the "backbone of the profession." I am sure that if some of Dr. Plesch's proposals were adopted they would lower the general practitioner's status even more. More of the brighter men from the medical schools must be attracted into this great branch of medicine, in order to raise it again to its rightful place. It is regrettable that so many doctors slip into general practice as a last resort, and thus with little enthusiasm.

Farnborough, Hants JOHN S. TAYLOR.

SIR,—I read with interest your leader, and the letter of Dr. J. Plesch. I write as a general practitioner and I appreciate your sympathy over the burden of our work. Since I left the Army I have kept statistics. In the first three months of 1947 and 1948 I had an average of 3990 consultations and visits. This year it rose to 5188—an increase of 30%. By and large the people need us and we must see the matter through to better days.

I cannot agree to the principle of lowering the standard of the general practitioner. We have, over the past half-century, lost a lot of our responsibilities to the specialists: but new fields of medicine and new interests have arisen to take their place. Surely the standard of G.P. medicine should be raised and not lowered. This can be fostered by team-work, each doctor having his own bias. Of the colleges, the Royal College of Obstetricians and Gynæcologists is the only one which meets the needs of the G.P. by its diploma. It should be possible for G.P.s to study special subjects and get recognition of their efficiency in them, without reaching for the standards of the true specialist. There should be a D.C.H., a D.A., and a D.P.M. for G.P.s. I do not like examinations as such, and I realise their shortcomings, but if one can achieve something objective, it is an incentive to keep up with one's studies. The chaotic state of hospitals today is due to the fact that cases are referred to specialists which should never leave the G.P.'s consulting-room for another opinion. This is due in part to the strain of overwork, and the fear to accept responsibility on our part. This vicious spiral can only be stemmed by G.P.s standing firm. We must treat all we can on our own: and safeguard the hospitals as much as possible.

The home, with familiar faces and objects around, is the proper place in which to treat most of the sick. Hospitals can and do produce their own peculiar diseases, by over-investigation and their failure to deal with patients in a personal manner. Your pages have recently had some very revealing articles on the shortcomings of institutions.

We general practitioners are specialists: specialists in personal medicine. In general it may be said that the personal touch is a bigger weapon in the fight against disease than any single therapeutic agent or reassuring

X ray. The basis of the doctor-patient relationship is confidence. How is real confidence to be maintained if the G.P. is debased to an orderly directing his patients to the most appropriate specialist?

No-one realises more than I do the value of specialists: but there is too much specialism today. The more one specialises, the more one becomes a technician and the less a physician. Already the pathologist and the radiologist have ceased to be physicians, and there are more to follow.

Nor do I agree that research-workers are a race apart. It is obvious that certain types of research can only be done by the laboratory worker: but there is room in the vast field of medicine for research in every sphere, and this includes general practice. If a general practitioner has no special interest, he stands in danger of getting stale and out of touch with modern trends. His special interest keeps him alert—a jack of all trades, maybe, but a master of *one*.

Much more propaganda is needed in the medical schools on the attractions and possibilities which lie in general practice. Most students end up as G.P.s, but how many lectures do they get on general practice? They are filled with ambitions to follow the masters of physic and surgery and only as a last resort do they descend to general practice. Little do they realise what soul-satisfying work it can be. The only touch they have with the outside world is the caustic comment of the house-surgeon on the foolishness of G.P.s.

To conclude, I feel that the high standard of British medicine depends on a high standard in general practice. This can be abetted by the following measures:

(i) Team-work among G.P.s so that different aptitudes can be combined to avoid, as far as possible, recourse to specialists.

(ii) More teaching on general practice in the medical schools. Why not a chair in general practice?

(iii) The grim determination of G.P.s to see this crisis through: and to refuse to lower their standard of efficiency.

These are dark days: but it is only hard work which will put us through to the better times ahead.

Ibstock, Leicester. C. H. WATTS.

SIR,—As a general practitioner of the younger generation, I was particularly interested by your leading article of April 2.

The medical services in this country, as I see them, comprise a threefold structure, whose component parts are contributed respectively by hospitals and consultants, public-health medical officers, and general practitioners. No mention was made in your leader of the second of these, which surprised me, because collaboration with his public-health colleagues, in the field of child health for instance, is an important part of the general practitioner's work. The three components already referred to are complementary and must remain both integrated and well balanced, if the medical services are to work efficiently. This essential condition would no longer hold good were the status of any one of them to be lowered, either in professional ability or public regard, as undoubtedly would occur if the suggestions of Dr. Plesch regarding medical education were ever taken at all seriously.

Professor Ryle once gave an address at Cambridge, entitled The Physician as Naturalist, describing the doctor as a student of φυσις or nature, and his particular field of study the sick man in relation to the whole of his environment. The general practitioner has peculiar opportunities for assuming this rôle. For he is able to survey the whole field of medicine without bias, and it is his privilege to spend a great part of his time visiting the sick in their homes, thus acquiring first-hand knowledge of that most intimate part of their environment. In addition to this, however, the scope and responsibility of the general practitioner are continually increasing with every advance made in the specialists' fields. To appreciate this point it is only necessary to consider what extra demands on one's clinical judgment are made, for instance, by the advent of streptomycin in the treatment of tuberculous meningitis, by the increased indications for surgery in peptic ulcer, or by the discovery of the part played by the rhesus factor in maternity work. In the field of social medicine also, as its researches begin to bear practical fruit, the general practitioner is sure to have an important part to play on account of his special opportunities for access to the patient's environment.

It is my belief that general practice today, although marred for the time being by the gravest financial anxieties, holds out the promise of work of increasing interest and responsibility, and the prospect also of being able to maintain one's intellectual integrity, not necessarily an easy thing to do in a highly organised State service.

Oxford. G. A. BALLANCE.

BENADRYL IN PARKINSONISM

SIR,—Lest recent reports should be too discouraging, I should like to give my experience. After reading the article by Dr. Ryan and Dr. Spurway Wood, in your issue of Feb. 12, I prescribed 'Benadryl' 4 capsules a day for a patient, aged 52, who has been under my care for paralysis agitans for the last nine years. She had become practically helpless, could not move in bed, get up, bathe, dress, or feed herself without help. A few days later she telephoned that it had worked a miracle. She has to a very large extent lost her rigidity; her face and speech are now normal; she sleeps without discomfort, and can get up, bathe, and dress without help. The relaxation of her fingers allows her to use her knife and fork again, and even her typewriter.

The tremor persists, and there is little improvement in her gait, but she has regained her independence and takes a new interest in life.

London, N.W.1. E. A. GATES.

*** We have also had a letter from a parkinsonian of ten years' standing who says that he has had benadryl for six weeks and "the improvement is unbelievable."—ED. L.

CLINICAL ESTIMATION OF BASAL METABOLIC RATE

SIR,—In my letter of March 5 I avoided criticising Dr. Greene's first letter (Feb. 19) because I did not know whether he was speaking as a physician or as one who was technically responsible for the observations on metabolism by the staff of his clinic. Dr. Greene's second letter (March 26), however, repeats many of his previous errors, as well as introducing others, and indicates that he has not benefited by correspondence on the subject in THE LANCET.

1. Dr. Greene questions the meaning of "correspondence" and says that in my article I did not suggest that the R.P. index is to act as an "indicator," as I did in my letter of March 5. This omission was due, as I stated in my letter, to the shortness of my article. Furthermore, in applying the word "index" to my formula I presumed that this would be understood by readers to signify an indicator or guide. No correspondent except Dr. Greene has had any difficulty in comprehending this. There is therefore no question of a "reduced claim."

2. Dr. Greene has not repeated my work. His reference to charts implies that the pulse and respiration rates must have been counted after at least half an hour's rest. Is he sure that the rate (and/or amplitude) of respiration is the same with and without a face-appliance? We know that a face-appliance can alter the carbon-dioxide output.

3. Dr. Greene's criticism of my 5-minute rest period is valueless. As Dr. Robertson (Feb. 19) has pointed out, "in seeking to make an intelligent guess at the basal metabolism, by a formula in no way related to heat output, it is not essential to comply with standard heat-output conditions."

4. And now for a study of some of Dr. Greene's cases which he quotes. (*a*) In thyrotoxicosis a respiration-rate at rest of 7 per min. is unusual. It would be interesting to determine in this case the mean respiratory excursion, the minute-volume, and the ventilation equivalent. (*b*) Dr. Greene quotes a B.M.R. of + 56% and an R.P. index of 960. Since the diagnosis of thyrotoxicosis has been confirmed histologically, the diagnosis cannot be doubted. But Dr. Greene must also admit that it is very uncommon for a patient with severe thyrotoxicosis to have a pulse-rate of 60 and a respiration-rate of 16 per min., or of 80 and 12

respectively. (c) Next, the case with the B.M.R. of — 3 and R.P. index of 2700. This would represent a pulse-rate of 135 and a respiration-rate of 20, or say 90 and 30 respectively. It is surely even more uncommon that a normal person should have such rates. There certainly must be a cause for this unusual picture, but Dr. Greene found "nothing organically was amiss."

5. Dr. Greene accuses me of seeking to turn the diagram by Miss Lovell and Dr. Martin (Feb. 12) "into a piece of evidence in his favour . . . by changing his views about the lower limit of the normal R.P. index, which he formerly considered to be 1100 and now considers to be 900." I pointed out in my reply (March 5), that "this correction depends on what should be taken as the lower limits for pulse and respiration rates. The difference in the normal range between Miss Lovell and Dr. Martin's cases and mine could be due to the different duration of the rest applied before the investigation, as Dr. Robertson wisely suggests; they insisted on 30 min. rest, whereas I insist on only 5 min." I also refer to Dr. Jordan's letter (Feb. 26): "Dr. Bene claims a good correspondence of results in about two-thirds of cases; I submit that this claim is supported by the figures of Miss Lovell and Dr. Martin."

If Dr. Greene is not impressed by my assumption that something is wrong somewhere when, with (?) thyrotoxicosis and a B.M.R. of + 90, there is no tachycardia, then I can forgive him when he says "the proportion of cases in which a B.M.R. is helpful in the diagnosis is comparatively small." It is small because the determination of the B.M.R. is open to error except in the hands of an expert. The casual observer is less likely to make a mistake in counting the pulse and respiration after 5 minutes than in measuring oxygen consumption under basal conditions.

In rejecting the usefulness of the R.P. index because it is "at its best approximately correct in only two-thirds" of cases, and simultaneously stating that the proportion of cases in which the B.M.R. is helpful is comparatively small, Dr. Greene makes the biggest contradiction. He attaches to such a complicated method as gas analysis a comparatively small usefulness and yet demands that such a simple method as is the R.P. index should be an absolute indicator in the diagnosis of thyrotoxicosis. Or does Dr. Greene suggest that Read and Boothby elaborated their formulæ without presuming their practical usefulness? By publishing their formulæ they certainly did see their applicability without claiming for them more than I do for the R.P. index—that it is a very good and simple help in establishing a clinical diagnosis.

London, W.8. EUGENE BENE.

LIVER EXTRACTS

SIR,—The recent correspondence, stimulated by Dr. Wilkinson,[1] regarding the suitability of pharmaceutical livers for the preparation of liver extracts has raised a question which can neither be avoided nor criticised in the manner implied by Mr. Shaw in his letter of March 26.

The reply by the Minister of Health [2] to the question raised in Parliament on Feb. 24 may be satisfactory inasmuch as the safety of a patient is not impaired by the injection of an impotent extract, but clearly the recovery of the patient may well be impaired.

Immediately after the cessation of European hostilities, I had the opportunity of examining several manufacturers' methods of liver-extract preparation in Germany. The impression gained regarding the necessity for fresh liver in the preparation of such extracts clearly supported the contentions of Dr. Wilkinson. During the war years, the Germans, like ourselves, utilised livers unfit for human consumption. The more obviously affected parts of cirrhotic and other diseased livers were excised before use. Nevertheless, the Germans preferred fresh livers and regarded liver of poor quality as likely to produce extracts of impaired potency.

Normally, the collection of livers in Germany was carried out with extreme care, fresh ox and cow liver being used, or frozen ox livers imported from the Argentine and Uruguay.[3] It would appear that precautions were taken to avoid freezing livers in too great a quantity; for in such large masses the interior showed signs of decomposition, with a greenish discoloration on thawing which the Germans also associated with low-potency extracts.

I believe that it is not uncommon for British manufacturers to find that considerable variation exists in the clinical potency of individual batches as processed, even though precisely controlled chemical methods are used for the purification of the extract. It would appear, therefore, that the main source of variation is the original liver, and in view of the Germans' experience and practice, as well as the experiences cited by Dr. Wilkinson, the desirability of the use of fresh liver for the preparation of parenteral extracts cannot be too strongly emphasised.

Chorley Wood, Herts. J. B. M. COPPOCK.

SIR,—Your comment on Dr. William Murphy's letter (April 2) refers to "concentrated 'refined' extracts which are popular in the U.S.A., but which we are not allowed to import," and draws a distinction between them and the "purified" extracts prepared by the technique of Dakin and West and other similar methods. The implication of this statement is that there is available in America a special class of liver extracts that are more highly refined, concentrated, and potent than the best extracts manufactured in Britain. Such, however, is not the case. Equally refined and highly concentrated liver extracts are manufactured in this country and have been available for many years. The Dakin and West process to which you refer, or modifications of it, is simply one of the processes by which highly refined extracts are manufactured.

It has been the common practice in Britain to have each batch of liver extract tested clinically to ensure that it reaches an accepted standard of activity. The practice of clinical standardisation of each batch is less common in America. There it is the custom, on the basis of a clinical test, to assign to each new extract when it is first manufactured a certain potency designated in terms of "*U.S.P.* units," and it is assumed that all batches of extract prepared thereafter by the same method and by the same manufacturer will have the same potency. Such a presumption is unwarranted. Every manufacturer of liver extract is well aware that occasional batches may fail on clinical testing to show the required degree of activity and so have to be discarded.

Further and more precise confirmation of variability among American extracts has recently been forthcoming consequent upon the isolation of the crystalline anti-anæmic factor, vitamin B_{12}, and the development of microbiological methods for assessing quantitatively the amount of anti-anæmic factor present in purified liver extracts. Reference may be made to a paper by Rickes et al.[4] who reported that the vitamin-B_{12} content of seven commercial preparations of American liver extracts, all designated as 15 *U.S.P.* unit material (the highest designation that any American extract may bear), varied from 1·2 to 14 μg. per ml. No-one would now claim that extracts containing such widely divergent quantities of the common anti-anæmic principle could all be equally effective clinically.

The effectiveness of the crystalline anti-anæmic factor in the treatment of pernicious anæmia is well established. It has also been proved to be effective against the neurological complications and it produces remission of the lingual symptoms. Moreover, the substance has also been shown to be effective in the macrocytic anæmia of sprue and in the nutritional macrocytic anæmia of the tropics. The theory of multiple essential factors being present in injectable liver extracts becomes, therefore, extremely doubtful, and an active extract, be it "crude" or highly refined, acts by virtue of its content of the common principle, vitamin B_{12}. Nor is it too much to hope that, in the near future, the treatment of anæmias responding to liver therapy will be defined with considerable precision in terms of weight of anti-

1. Wilkinson, J. F. *Lancet*, Feb. 5, p. 239; *Ibid*, Feb. 12, p. 249; *Ibid*, Feb. 19, p. 291; *Ibid*, Feb. 26, p. 336.
2. *Ibid*, March 5, p. 420.
3. B.I.O.S. rep. no. 116; item no. 24; appendix 7(1). B.I.O.S. rep. no. 449; item no. 24; p. 22. B.I.O.S. rep. no. 766; items no. 22 and 24; p. 247. C.I.O.S. rep. no. 32–47; item no. 24; p. 105.
4. Rickes, E. L., Brink, N. G., et al. *Science*, 1948, **107**, 396.

anæmic factor required by the individual patient. It can be expected that liver extracts designated simply as crude, purified, concentrated, or refined, or carrying an arbitrary designation of potency expressed in a somewhat nebulous and doubtful unitage, will give place to preparations that contain a declared amount of the known active anti-anæmic factor.

Glaxo Laboratories Ltd., Greenford. H. M. WALKER.

MEDICAL TREATMENT ABROAD

SIR,—In your issue of March 26, which contains my previous letter, you report the Economic Secretary to the Treasury as saying that :

> "There was no question of refusing currency to anybody who could improve his chances of recovery as a result of going abroad. The Exchange Control Medical Advisory Committee did not question the medical facts as stated by the patient's doctor. They were not a group of bureaucrats but considered the cases sympathetically and liberally."

But the truth is that the committee *does* question the medical facts as stated by the patient's own doctor, and makes its decision on inadequate premises. The only men who can fairly judge the issue are the patient's doctor and the consulting chest physician who are on the spot. And it is impossible to give "sympathetic consideration" to shadows seen in an X-ray film.

Mr. Walter Elliot's letter of April 2, quoting extracts from Mr. Glenvil Hall's, does not, in my view, excuse the existence of this committee. The committee is redundant, since most patients who ask for currency are known to the chest physician of the area in which they live and make application to him. If he cannot be trusted not to recommend for currency those who would not increase their chances of recovery by going abroad, it does not appear that anyone else, in the absence of knowledge of the patient, can be trusted to come to a fair decision. No appeal tribunal set up and working as this one does can solve the problems involved without injustice to applicants.

B. G. EDELSTON
Chest Physician, South-East
Folkestone. Metropolitan Regional Hospital Board.

THE EOSINOPHIL CELL

SIR,—I was very pleased that Dr. Lendvai, in his letter of April 2, raised the subject of ovalocytosis in human beings.

Parallel with our studies on camel blood, we had a case of familial ovalocytosis in father and son, and in both these patients it was found that the proportion between ovalocytes and round cells was very even. The eosinophil cells in the peripheral blood contained

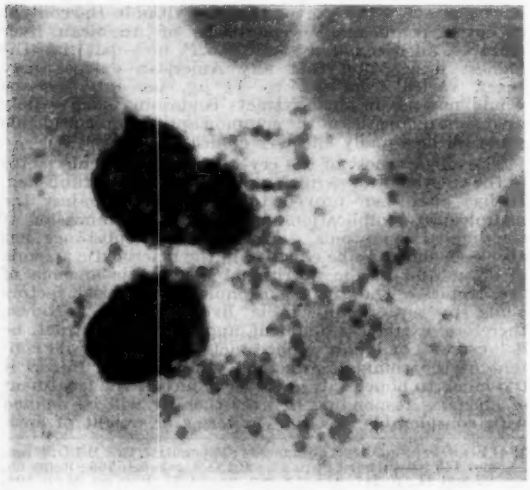


Fig. 1.

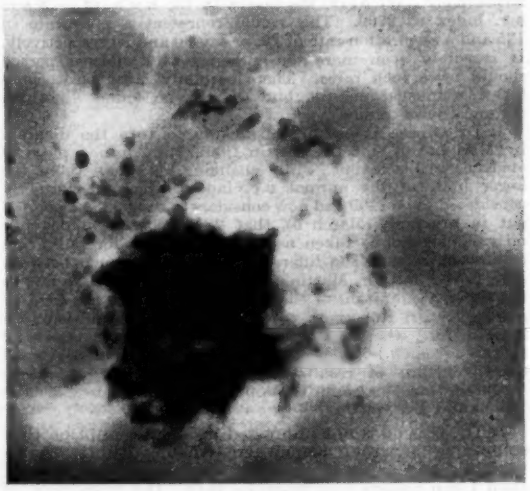


Fig. 2.

oval granules, as we had seen in the camel, and in the broken eosinophils, where the granules are more evident and can be classified, the proportion between round and oval granules was similar to the proportion between the round and oval cells, as shown by the accompanying photomicrographs. As we had been able to investigate only two patients we did not feel justified in being dogmatic about our findings ; but as Dr. Lendvai raises the point I should like to take this opportunity of disclosing our observations, limited though they are. Further studies of camel spleen, which we hope to publish elsewhere, demonstrate clearly that in this organ there are numerous large cells full of oval granules, and the graduation in size of both cells and granules can be followed without difficulty.

Ancoats Hospital, Manchester. F. DURAN-JORDA.

ROAD ACCIDENTS

SIR,—*Cave canem*, or should it be *caveat canis* ? Dr. Sandler (April 2) suggests a very high-pitched whistle to warn dogs of the approach of his vehicle. A simpler method is to bang with the hand on the outside of the driver's door. This usually makes dogs look up and run out of the way.

For those who are troubled by dogs when on foot, it is enough to bend down and pretend to pick up a stone : nearly all dogs slink away. If they do not, the pretence of throwing the imaginary stone should be adopted.

Henleaze, Bristol. HUGH R. E. WALLIS.

Parliament

Paying for our Social Services

IN introducing his Budget on April 6 Sir STAFFORD CRIPPS, Chancellor of the Exchequer, said that investment in the social services as a whole should be very little less than last year, with a slight decline in the total cost of housing activities, and an almost corresponding increase in capital investment on education, the health services, and water-supply. It would be impossible to reduce Government expenditure, and therefore taxation, so long as defence and the social services were provided on the present scale. When he heard people speaking of reducing taxation and at the same time saw the cost of social services rising rapidly, often in response to the demands of the same people, he wondered whether they appreciated to the full the old adage that one could not have one's cake and eat it.

Last year the people of this country enjoyed an unexampled national dividend in the form of a free National Health Service at the cost, for 9 months of its

duration, of £208 million. Next year for 12 months this service was estimated to cost £268 million. Such expenditure must be paid out of the national income of the community by taxation. If this was not done unflinchingly we should face inflation.

The reduction or elimination of the Budget surplus arose, he continued, primarily from the increase in Government expenditure on defence, food, and social services. The social services were a permanent and continuing obligation which automatically increased as those services inevitably developed. The more and better the services given, the more must be the cost. If, for instance, the 60,000 hospital beds at present closed for want of staff were brought into operation, as it was hoped they would be, another £15–20 million would be added to the cost of the health services. The cost of social insurances would increase in the same way. Nothing could stop that increase except cutting down of the social services, and he did not believe anyone was prepared to recommend that. They must therefore recognise the unpleasant fact that those services must be paid for by taxation, direct or indirect.

A great and highly desirable redistribution of wealth had already taken place over the last few years within our community. To a large extent that had resulted from the provision of the extended social services for the less well-to-do at the cost of the more well-to-do. That had been a purposeful policy most successfully carried through, but there was not much further immediate possibility of the redistribution of national income by way of taxation. For the future they must rely rather on the creation of more distributable wealth than upon the redistribution of the income which existed. Total taxation, local and national, was now more than 40% of the national income, and at that level the redistribution of income entailed in the payment for social services already fell to a considerable extent upon those who were also the recipients of those services. We must therefore moderate the speed of our advance in the extended application of the existing social services to our progressive ability to pay for them by an increase in our national income. Otherwise we should not be able to avoid entrenching to an intolerable extent on the liberty of spending by the private individual for his own purposes.

Looking at Government expenditure as a whole, the Chancellor said he had thought it advisable to issue a Treasury circular asking all departments to review again the expenditure which was likely to flow from the development of existing policies so that it could be kept within the bounds of what was considered feasible. In particular, he had emphasised that only in special cases —for example, major changes of policy—could any supplementary estimates in future be permitted.

Food subsidies had risen from £63 million in 1940–41 to £485 million at the present time, and it was estimated that, if the present prices were maintained and there was a very moderate increase in supplies, as was hoped there might be this year, the total subsidies payable would amount to no less than £568 million, all of which must be found by taxation on top of the other prospective increases already mentioned. That could not go on, Sir Stafford declared. We must call a halt or else we should find ourselves in the ridiculous position of having to refuse to import much-needed food because we could not afford to pay the subsidy out of our Budget. The Government therefore proposed to put an effective and firm limit on subsidies. If there was a further rise in cost it would have to be added to the price. He proposed that, as from early dates to be arranged by the Minister of Food, the following increases in prices to be charged retail should be made: Cheese, 4*d*. per lb.; meat, 4*d*. per lb.; margarine, 1*d*. per lb.; and butter, 2*d*. per lb. These changes would cause a rise in the cost-of-living figure on the all-items index of rather less than 2 points.

There was a curious idea abroad, Sir Stafford said, that as a result of last year he had a surplus. That money had all been used for disinflation. There was indeed, he continued, a good argument for imposing some special charge or tax in connexion with the health services, both to help to finance them and to bring home to people that they had to be paid for out of taxation. It might be argued that this might make people more economical in their use of the services. But he had come to the conclusion that we should await the outcome of another year before taking such action. He hoped there would be such economy in the use of the services as to make it unnecessary. We had chosen, he concluded, to have our benefits in the form of extended social services, which had brought the people increased comfort and easement of their conditions. We must face the consequences of that deliberate choice.

QUESTION TIME

Eradication of Bovine Tuberculosis

Mr. A. R. HURD asked the Minister of Agriculture if he had completed his consultations with the farming organisations and the veterinary profession on the arrangements to be made for the systematic eradication of bovine tuberculosis, and the establishment of clean areas; and when he would put such a scheme into operation.—Mr. TOM WILLIAMS replied: While discussions with the interests concerned show that there are no wide differences of view as to the main principles on which an area eradication plan should be based, a few difficult questions remain as regards the financial provision of such a plan. I hope, however, that these may be resolved in the near future. Meanwhile, substantial progress continues to be made under the voluntary tuberculosis (attested herds) scheme which now includes nearly a million and a half cattle.

Composition of National Flour

Dr. BARNETT STROSS asked the Minister of Food what amounts of vitamins A, B_1, and B_2, and calcium were available in wheaten bread; and what were the corresponding amounts in the pre-war white loaf.—Mr. JOHN STRACHEY replied: I assume that by "wheaten bread" the hon. Member means bread made from National flour of 85% extraction-level. There is no vitamin A in bread. The comparative figures for the vitamins B_1, B_2, and calcium of the national and pre-war white bread are as follows:

	National (mg. per oz.)	*White* (mg. per oz.)
Vitamin B_1 (Thiamin)	0·063	0·015
Vitamin B_2 (Riboflavin)	0·028	0·013
Calcium	31	3

Dr. STROSS asked the Minister what variation there had been in the rate of extraction of wheat in the preparation of flour during the past four years; and what was the type of reinforcement of flour now in use.—Mr. STRACHEY replied: During the past four years the rate of extraction of national flour has varied between 80% and 90%. The current rate of extraction is 85%. National flour is reinforced with calcium (creta preparata) at the rate of 14 oz. per 280 lb.

Medical Referees

Mr. GRANVILLE SHARP asked the Minister of Health what were the functions of part-time medical referees on the regional staff of his department.—Mr. ANEURIN BEVAN replied: The part-time medical referees examine insured persons on reference by the Ministry of National Insurance and advise on the question whether they are incapable of work. They also examine disabled persons referred by the Ministry of Labour and National Service in order to advise disablement resettlement officers on general questions under the Disabled Persons Acts, 1944.

Beds for the Tuberculous

Mr. SOMERVILLE HASTINGS asked the Minister how many fully staffed beds were available for the treatment of tuberculosis in England and Wales in 1945, 1946, and 1947.—Mr. BEVAN replied: The numbers of beds at the end of 1945, 1946, and 1947 respectively were approximately 27,340, 27,150, and 28,830.

Provision of Analgesia

Lady TWEEDSMUIR asked the Minister when he expected to receive the final recommendations of the Medical Research Council as to the latest types of analgesic drugs and apparatus suitable to be administered by midwives alone.—Mr. BEVAN replied: No forecast can yet be given. Although existing methods will no doubt be reviewed by the committee which has been set up, the question remitted to the Medical Research Council by the Working Party on Midwives was on the possibility of devising improved methods. This is a relatively long-term project involving the initiation and conduct of actual research work, and quick results are not to be expected

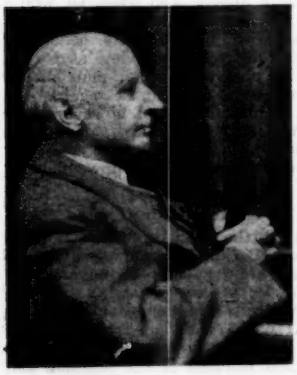
Obituary

GILBERT WILLIAM DE POULTON NICHOLSON

B.A., M.D. CAMB.

Professor Nicholson, who died on March 11, held the university chair of morbid anatomy at Guy's Hospital until his retirement in 1944.

Of his work as one of our greatest histopathologists, R. A. W. writes: "Nicholson's studies in pathological anatomy, especially the pathology of tumours, are remarkable not only for their accuracy and their beautiful illustrations—the product of his own hand—but for their profundity and philosophical flavour. His passion for careful examination and description, his scathing impatience with careless or superficial work and with ill-founded hypothesis, and his wide and sound knowledge of general biology as well as of human pathology, combined to make his writings classics. Their versatility and the amount of detailed factual information which they contain are astonishing. The general and special pathology of tumours, the structure and nature of teratomata, ovarian goitre, endometriosis, heterotrophic tissues, metaplasia—these are only some of the subjects dealt with in Nicholson's papers and many of them dealt with more authoritatively, more critically, and more presciently than by any previous writer. His work cannot be appreciated by the hasty superficial reader or by the utility-monger. It is the work of a great microscopist, scholar, and philosopher; and those who read and reread it will find it a storehouse of both information and wisdom. A collection of his papers reprinted in one volume would be a stimulus to pathologists both young and old, a great ornament to English pathological literature, and a fitting memorial to a too-little-appreciated scientist."



An old friend, R. D.-C., adds these personal lines: "Of Irish and German parentage Nicholson inherited many of the characteristics of both races, and his early education in the stilted and conventional atmosphere of Coburg was probably responsible for a habit of intolerance and a brusqueness of manner, which never quite left him and were apt to create an unfavourable first impression. But those who knew him well realised that he was really one of the kindest and most generous of men and the truest of friends. He loved children and understood them, and there must be many, now grown up, who cherish the memory of happy hours spent with him in their childhood. Outside his work he was fortunate in having hobbies which took him out of London into the pure air of the country. He was a great walker in his younger days and an ardent naturalist, and he was never happier than when rambling in the woods and fields in search of beetles, of which he amassed an enormous collection, and on which he was a noted authority. On these occasions he was the most delightful of companions and a fund of information on every branch of natural history.

"He cannot be said to have been a good teacher of undergraduates. Routine classes were always irksome to him, and a nervousness when confronted with an audience was a great handicap. For the same reason he was rarely seen at pathological meetings. But to anyone who was genuinely interested in his subject he would open his heart and give freely of his vast knowledge and experience, and those who were admitted to the intimacy of his sanctum at Guy's considered themselves fortunate indeed to have known and learnt from so great a master.

"From his early days at Jesus College Nicholson always retained a great affection for Cambridge and the fen country, and on his retirement he went to live there, almost under the shadow of his old college. Though his health was failing, his last five years were happy ones, and his final illness came suddenly and was short."

After taking his B.A. at Cambridge in 1899 Nicholson went to Guy's to complete his medical studies. In 1905 he graduated M.B. and he held house-appointments there until in 1907 he was awarded a Gull studentship. A period as an assistant in the research department of the Cancer Hospital followed till in 1913 he was appointed morbid histologist and director of the department of clinical microscopy at Guy's. Nine years later he became reader in morbid histology and in the following year demonstrator of normal histology. The title of professor was conferred on him in 1928, and in 1945 he was made professor emeritus in recognition of his services to the university and to morbid anatomy.

ARTHUR HEDLEY CLARENCE VISICK

M.B. LOND., F.R.C.S.

Arthur Visick, who died at the York County Hospital on April 4, was one of the leading surgeons in the North of England. He came from a long line of doctors, his father, grandfather, and greatgrandfather having been members of the profession. His sister, Mrs. Griffiths, is consulting surgeon to the New Sussex Hospital for Women and Children, Brighton.

He was born in Hampstead in 1898, and was educated at Epsom College and St. Bartholomew's Hospital, London, where he won an entrance scholarship in 1915. As a student he won many prizes and distinctions, including the Treasurer's anatomy prize, the Foster anatomy prize, the Willett operating surgical medal, the Walsham pathological prize, and the Brackenbury surgical scholarship.

[Yorkshire Evening Press

After house-appointments and a chief assistantship to the surgical unit at Barts, he obtained a Rockefeller scholarship and went to the U.S.A., where he held the appointment of assistant surgeon and instructor in orthopædic surgery in the University of Michigan. During his stay there he reorganised the methods of admission and of record-keeping. His main interest, however, was the surgery of the thyroid, in which he was an assistant to Peet.

On his return to England he went to York in 1928 and was appointed to the staff of the York County Hospital, and later, when it was opened in 1942, to the City General Hospital, York. He devoted his services to these two hospitals until his death at the early age of 51.

A. V., as he was affectionately called, was an outstanding surgeon. In his early days in York, his interest lay mainly in the surgery of the thyroid; but in later years, especially since 1941, he had devoted his energies to developing the technique of gastric surgery, which in his hands reached a high level; and his operative results were as good as any in the country. He gave himself unsparingly to his work on peptic ulcers, which received both national and international recognition; he was a Hunterian professor, and was awarded the Bishop Harman prize for 1948. He was not content with the operative work alone, but organised a very complete follow-up system; and in recent years it was rare that a week went by without a visit to his gastric clinic by a surgeon from somewhere in the British Isles or abroad, to study his technique and results. It always grieved him that physicians did not seem to be interested in the

possibilities of surgery for peptic ulcers. The very large number of his patients who attended the funeral service in York Minster on April 6 was perhaps a more telling testimony of his results than any of his published statistics—impressive as they are.

Arthur Visick was an appreciative and understanding colleague. He was never afraid to speak his mind, and had no use for careless or inefficient work; but he had a remarkable ability for attracting affection from all who worked with him, and from his patients. He was keenly interested in all aspects of hospital work, being chairman of the York County Hospital house-committee, and a member of the local hospital management committee.

Apart from surgery his interests were simple; he was fond of country pursuits, and his chief happiness lay in his life at home and in his family. He married Christine Ruegg in 1929, and they had one daughter and two sons.

C. N. P.

C. G.-W. writes: When Arthur Visick served as my chief assistant at St. Bartholomew's some thirty years ago, I realised that he was cut out for surgery. When the war brought me to York early in the war, I found he had become a well-known and highly respected surgeon and had acquired a reputation for gastric surgery. A Hunterian professorship gave him the opportunity to present before the Royal College of Surgeons a most careful statistical analysis of some 500 cases of gastrectomy with remarkable end-results. When I had to submit to this procedure, I placed myself with confidence in his hands, and splendidly he justified my confidence.

Our sympathy goes out to his wife and family, for he was essentially a happy family man. He lived for his family and his work. The remarkable gathering in the Minster at his funeral showed how much he was beloved by friends and patients; truly he was a lovable character. For the County Hospital and the people of York his loss will be difficult to repair.

Public Health

Mineral Oil in Food

THE Mineral Oil in Food Order, 1949, which came into force on April 9, prohibits the use of mineral oil as an ingredient of food manufactured for sale to the public. Announcing the Order, the Ministry of Food observes that prolonged and regular consumption of medicinal paraffin

"may lead to deposits of the oil in certain organs of the body. Deposits of medicinal paraffin would not, in so far as is known, be harmful in themselves, but the same cannot be said for other mineral oils, many of which are known to contain harmful substances. Moreover, too little is known about the fate of deposits of mineral oils, including medicinal paraffin, in such organs as the liver, for the medical profession to remain indifferent about them. The regular consumption of liquid paraffin has other unfortunate consequences. The paraffin, whether medicinal or not, dissolves vitamin A (and its precursor carotene) and vitamin D, and inhibits the assimilation of these essential vitamins by the digestive system. Experiments have shown that as much as 50% of vitamin A and carotene may be lost in this way when liquid paraffin is substituted for fat in the diets of laboratory animals. . . . In view of the harmful effects which might result from the indiscriminate use in this way of mineral oil, including medicinal paraffin, housewives are strongly urged not to purchase or to use these substances as substitutes for edible oils in home cooking."

The use of mineral oil in food was discussed in our issue of April 2 (p. 586). In a report on the incorporation of liquid paraffin in bread, to keep it fresh—a practice which has been tested at a Paris bakery—the Académie Nationale de Médecine [1] points out that the country is unable to produce the amount of paraffin required for the general adoption of the method, and that bread treated in this way would have a laxative effect.

1. *Bull. Acad. Méd. Paris*, 1949, **133**, 122.

News

University of London

The degree of D.SC. has been conferred on Dr. F. R. Selbie.

University of Edinburgh

On Monday, May 2, at 5 P.M., in the physiology lecture-theatre, University New Buildings, Teviot Place, Dr. Douglas Guthrie will give the first of a series of lectures on the Historical Approach to Medicine.

University of St. Andrews

The James Mackenzie Institute for Clinical Research has given over £15,000 to the university for the endowment of professorships in child health and in public health and social medicine.

Royal College of Surgeons of England

At a meeting of the council on April 7, with Lord Webb-Johnson, the president, in the chair, the Jacksonian prize for 1948 was awarded to H. L. M. Roualle (St. Bartholomew's Hospital) for his essay on malignant disease of the thyroid gland. A certificate of honourable mention and an honorarium was awarded to C. G. Rob (St. Thomas's Hospital) for his essay on the same subject.

The John Hunter medal and triennial prize were awarded to P. M. Daniel (Oxford) for his research on "the discovery of afferent nerves and muscle spindles in the external ocular muscles: also contributions to the discovery of shunt in the renal circulation."

The following were elected fellows of the college without examination: Mr. Arthur Woo (Hong Kong), Mr. R. J. Cann (Guy's Hospital), Prof. Robert Bradlaw (Newcastle), Prof. Thomas Yeates (Middlesex Hospital), Prof. D. E. Derry (Cairo), and Mr. A. B. Nutt (Sheffield).

Mr. P. H. Mitchiner was elected an examiner for the primary fellowship examination. Prof. Kurt Thoma (U.S.A.) was appointed Charles Tomes lecturer for 1949.

The fellowship of the faculty of anæsthetists was granted to Dr. G. F. V. Anson (New Zealand). The Begley prize for anatomy and physiology was awarded to W. H. McBay (King's College, London).

The following diplomas were granted jointly with the Royal College of Physicians:

D.P.H.—J. H. F. Norbury, Alexandrina M. M. Parker.

D.T.M. & H.—M. H. M. Abdulcader, A. Z. Abduttam, P. B. Adamson, Doreen M. Bottone, Wei-Hsien Chao, M. J. Colbourne, C. D. Desai, C. C. Draper, G. M. Edington, R. T. D. Emond, M. K. D. Hagopian, T. K. Howat, H. C. Jeffrey, V. V. Kalbian, S. F. Liu, M. F. McDowall, Megat Khas Bin Megat Omar, A. R. Mills, G. P. Mohanty, I. S. Mudie, E. J. D. Nariman, Muniswamappa Ramu, V. G. Rao, R. G. Rowberg, A. B. Roy, Emanuel Shirajian, George Skinner, A. J. W. Spitz, Carlos Suarez, C. K. M. Thacker, A. H. Wahba, A. A. Zaki.

D.O.M.S.—A. L. Alban, A. E. Barrett, G. T. Bedford, P. L. Blaxter, H. A. Bramwell, Berysz Brodkiewicz, A. N. Cameron, M. A. Carpenter, Hsi-Hua Chang, D. P. Choyce, L. N. Deshmukh, B. K. Dhir, G. C. Gulati, Florence I. Henry, A. P. K. Homayount, P. L. Kiewe, Jack Levy, Kathleen M. Long, A. J. A. McCormick, F. E. McLaughlin, James McMillan, G. P. Mann, V. A. F. Martin, S. B. Mukhopadhaya, D. P. North, Abina T. O'Connor, L. W. Payne, T. J. G. Price, S. A. Qadeer, Toni J. Riegele, W. L. Robinson, C. M. Ruben, R. P. Sarda, M. D. Sengupta, W. A. M. Smith, I. B. Taylor, R. A. Trope, K. C. Wybar.

D.C.H.—Unity R. Allen, Manuel Anderson, Mary V. Ashton, G. N. Barsden, Aleida E. M. R. Bisschop, Margaret E. M. Blanden, J. H. Boydell, D. L. Bridgewater, J. F. Britto, A. D. Brown, Elizabeth R. M. Brown, Winifred C. M. Bulkeley, Sheila M. Burt, Alice M. Bush, C. D. Cassimos, Phoebe Charlton, H. M. T. Coles, Helen M. Connell, Dorothy J. Cooper, A. H. C. Couch, J. H. Coulson, D. H. Cownie, Margery N. Cummins, Joan P. D'Arcy, K. K. Datey, R. S. Dayal, Pauline M. Dean, Thomas Debney, Michael Elyan, A. D. Fair, Margaret L. Fallon, Marie A. Favard, Elspeth M. Frith, Betty B. Glansfield, Jean F. Gordon, Nathan Gordon, Joan M. Griffiths, Y. G. Gupte, G. J. H. L. Hall, A. G. Healing, Alison Hunter, W. N. Ingham, S. E. M. Jarvis, H. R. Jolly, Mary P. L. Karney, Barbara M. Killick, Alison B. King, Catherine M. R. Kirkpatrick, A. A. Lewis, H. W. Macintyre, Ma Po Po, P. L. Masters, R. M. Mayon-White, Brenda M. Mead, Philip Micallef, Mok Hing Yiu, J. P. Mostyn, Putli Nanavatty, Jean S. Isbister, D. N. Patel, D. T. Pitt, J. N. Pohowalla, Diana Powell-Cotton, T. M. Pritchard, Helen Rennie, Catherine P. Schofield, L. G. Scott, Joan N. Scragg, Nivedita Sen, C. S. Shaw, Ka-Hee Siu, Louis Solomon, Ralph Spielsinger, Maude Stevenson, T. K. Sundaram, W. P. Sweetnam, Alexandra Tobert, D. Q. Trounce, Samuel Wayburne, J. A. Waycott, L. R. Whittaker, Edith H. Williams, Alice E. Wilmot, Margaret Wilson.

D.Phys. Med.—J. W. Byrne, C. W. Coplans, H. R. Davies, H. J. Glanville, Guy Savill.

D.M.R.-D.—Włodzimierz Stachurko.

Almroth Wright Lectures

A course of six lectures on the bacterial cell will be held at the Wright-Fleming Institute, St. Mary's Hospital, London, W.2, on Tuesdays at 5 P.M., during the summer term. Further particulars will be found in our advertisement columns.

Royal College of Physicians of Ireland

On April 5 Lord Boyd-Orr was admitted to the honorary fellowship of the college. The oration was delivered by Dr. T. P. C. Kirkpatrick, registrar of the college. Afterwards Lord Boyd-Orr gave an address on Medicine in a Changing World.

The following, having passed the final examination in medicine, surgery, and midwifery of the conjoint board of Ireland have been admitted to the licentiateship:

J. G. Campbell, C. A. Cusack, J. J. Dollond, M. M. Marks, C. W. R. Murray, J. B. McCaffrey, W. J. McKeogh, Joan M. O'Connell, E. J. M. O'Connor, F. J. O'Hagan, Edward O'Rafferty, Julia O'Reilly, W. P. Timmon.

Royal Faculty of Physicians and Surgeons of Glasgow

The following have been admitted to the fellowship:

R. A. Blair, James Crorie, Sudhendu Kumar Ganguli, Ghulam-Hussein Velshi Keshani, Margaret M. O'Hare, C. M. Ross, I. A. Short, J. F. Smith, Mary D. Smith, R. A. Y. Stewart, F. H. Stone, W. O. G. Taylor, R. M. Thomson, J. D. Woods (qua physician); A. A. Bonar, Ewan Cameron, R. K. Dewar, John Ferrier, J. D. Fraser, T. B. Gardiner, Jayantilal Muljibhai Jalundhwala, George Johnstone, Mohammed Taqui Khaleeli, Douglas MacLeod, D. A. Macpherson, A. L. Morton, J. F. P. Mullins, Rameshchandra Manjanath Nadkarni, T. R. A. Richmond, Nagalingam Therugnana Sampanthan, Malcolm Shaw, Rabindra Narayan Sinha, George Smith, R. A. Tennent, J. K. Watt (qua surgeon).

Royal College of Obstetricians and Gynæcologists

At a meeting of the council held on March 26, with Sir William Gilliatt, the president, in the chair, the following were elected to the fellowship:

Doris C. Bates, R. B. Charlton, K. M. K. Duff, M. D. A. Evans, J. D. S. Flew, Barton Gilbert, J. W. Johnstone, W. I. C. Morris, Margaret M. Nolan, H. L. Sheehan, D. F. Standing, C. K. Vartan, William Waddell, W. W. Wilson, R. G. Worcester.

Harold Renton was elected to the membership.

A prize for an essay on the Physiology or Management of the Third Stage of Labour was divided between Dr. Jean Burton-Brown of Oxford and Dr. David Fletcher Shaw of Manchester.

Seminological Centre

The address of the Family Planning Association's seminological centre is now 64, Sloane Street, London, S.W.1. Facilities include a laboratory for the diagnosis of early pregnancy, and the results of tests will normally be available within 24 hours.

Congress of Catholic Doctors

The fourth International Medical Congress of Catholic Doctors will be held in Rome from Sept. 24 to 30. Further particulars may be had from Dr. W. J. O'Donovan, hon. secretary of the Guild of St. Luke, SS. Cosmas & Damian, 130, Harley Street, London, W.1.

Hospital Honours its Staff

On April 1 Sir Ronald Matthews, formerly chairman of the board of governors, opened the Ernest Finch medical library at the Sheffield Royal Infirmary. The library was first begun in 1946 with money subscribed by colleagues and former students on Professor Finch's retirement. Sir Ronald later unveiled a plaque renaming the dermatological department the Rupert Hallam Department of Dermatology. Neither Professor Finch nor Dr. Hallam were able to attend the ceremony, but Sir Ronald read letters which they had sent.

British Association

The annual meeting of this association will be held this year in Newcastle-on-Tyne from Aug. 31 to Sept. 7 under the presidency of Sir John Russell, F.R.S. The programme of the section of physiology includes discussions on adolescent nutrition, relations of brain to mind, microbial digestion in the alimentary tract, folic acid and anæmia, and a presidential address by Prof. R. A. Peters, F.R.S., on The Cell. Further information may be had from the secretary of the association, Burlington House, London, W.1.

British Hospitals Association

As a sequel to the nationalisation of the voluntary hospitals, this association, which includes the Central Bureau of Hospital Information, was voluntarily wound up on April 1, and Mr. E. F. G. Whinney, of Messrs. Whinney, Smith and Whinney, 4B, Frederick's Place, Old Jewry, London, E.C.2, was appointed liquidator. Until stocks have been exhausted, copies of the Central Bureau memoranda and of the *Hospitals Year Book* can be obtained from him. Mr. J. P. Wetenhall, secretary of the association, is chairman of the League of Hospital Friends, whose formation we announced last week.

Diary of the Week

APRIL 17 TO 23

Tuesday, 19th

SOCIETY FOR THE STUDY OF ADDICTION
4 P.M. (11, Chandos Street, W.1.) Dr. R. D. Newton: Alcoholism as a Neurotic Symptom.

Wednesday, 20th

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, W.1
3.30 P.M. Mr. Joseph Minton: Occupational Eye Diseases and Injuries. (First of two lectures.)

ROYAL MICROSCOPICAL SOCIETY
5.30 P.M. (B.M.A. House, Tavistock Square, W.C.1.) Prof. J. Gough, Mr. J. E. Wentworth: Use of Thin Sections of Entire Organs in Morbid Anatomical Studies.

Friday, 22nd

BRITISH ORTHOPÆDIC ASSOCIATION
9.30 A.M. (University of Nottingham.) Opening of spring meeting.

Appointments

BARLING, G. M., M.B., B.SC. Birm.: ophthalmic surgeon, Peterborough area.
DUNKLEY, E. W., M.B. Lond., D.A., D.C.H., D.P.M.: asst. physician, department of psychological medicine, University College Hospital, London.
GEORGE, J. T. A., M.B. Birm., D.P.H.: M.O.H., Coseley, Staffs.
* KIMBELL, N. K. B., M.B. N.Z., M.R.C.O.G.: specialist obstetrician, Peterborough area.
NAPIER, F. J., M.B., D.P.M.: medical superintendent, Hellesdon Hospital, Norfolk.
RICE, H. M., M.D. Lond.: pathologist in charge of laboratory, Nottingham General Hospital.
ROYCE, G. B., M.B., B.SC. Leeds: chest physician, Peterborough area.
WILLIAMS, G. O., PH.D.Lond., M.R.C.S.: H.M. inspector of factories.

* Amended notice.

Births, Marriages, and Deaths

BIRTHS

BANKS.—On April 2, at Bangor, North Wales, the wife of Dr. P. J. Banks—a son.
BENNETT.—On March 27, at Singapore, the wife of Dr. Vincent Bennett—a son.
GRAHAM.—On April 1, in London, the wife of Dr. I. C. A. Graham—a daughter.
HYNES.—On March 30, at Godmanchester, the wife of Dr. John Hynes—a daughter.
McIVER.—On April 1, in London, the wife of Dr. Cecil McIver—a daughter.
MAREŠ.—On April 1, in London, the wife of Dr. Andrej Mareš—a son.
PHILLIPPS.—On March 31, the wife of Dr. W. H. Phillipps—a daughter.
REID.—On April 2, the wife of Dr. R. K. Reid—twin sons.

MARRIAGES

NUNAN—REYNOLDS.—On March 30, in London, William Nunan, M.D., to Marjorie Reynolds.
YOUNG—SMITH.—On April 2, in London, Robin Bryce Young, M.B., to Pamela Helen Isabel Smith.

DEATHS

GOW.—On April 3, at Dundee, Peter Fleming Gow, D.S.O., M.A., M.B. St. And., F.R.C.S.E., F.R.C.O.G., lieut.-colonel, I.M.S. retd.
HALL.—On April 7, at Hove, Donald George Hall, M.A., M.D. Camb., F.R.C.P., aged 72.
MILESTONE.—On April 4, at Croydon, Evelyn Stone Milestone, M.D. Brux., aged 85.
STANGER-LEATHES.—On April 4, Hugh Ellis Stanger-Leathes, M.R.C.S., D.T.M. & H., colonel, I.M.S. retd.
VISICK.—On April 4, at York, Arthur Hedley Clarence Visick, M.B. Lond., F.R.C.S., aged 51.
WINTER.—On March 31, at Taunton, Herbert Gregory Winter, C.B.E., M.C., brigadier, A.M.S. retd.

CORRIGENDUM: *Long-acting preparation of testosterone.*—The description of the manufacture of this preparation, given by Professor Carlinfanti and his colleagues in our issue of March 19 (p. 479), should read as follows:

To a solution of 1 g. of crystalline testosterone (melting-point 154·5°C) in 10 ml. of 96% ethyl alcohol is slowly added, with constant stirring, 20 ml. of an aqueous suspension of aluminium phosphate 7 mg. per ml. The mixture of small testosterone crystals and aluminium-phosphate particles is allowed to sediment, and the supernatant fluid is decanted off. The residue is made up to 40 ml. with saline solution. In the case of soluble antigens, there is no doubt that the aluminium-phosphate gel adsorbs the proteins employed. In the case of a suspension of crystalline testosterone, we may be dealing with an adsorption effect, for adsorption by crystals is not unknown; but it is possible that aluminium phosphate, promoting fibrous encapsulation, makes the hormone leak out slowly through the capsule wall. Certainly aluminium phosphate acts as a stabiliser of the suspension.

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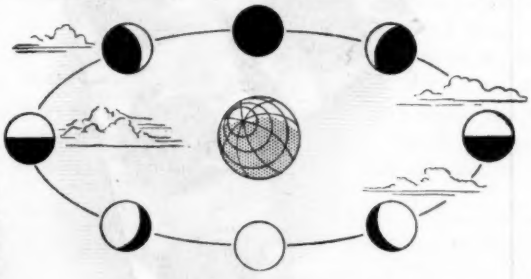

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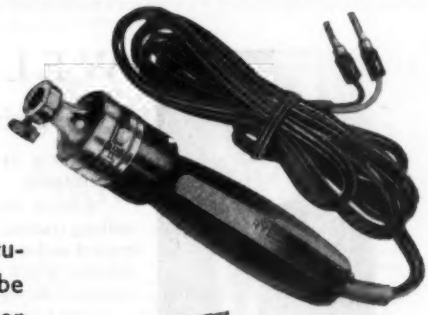

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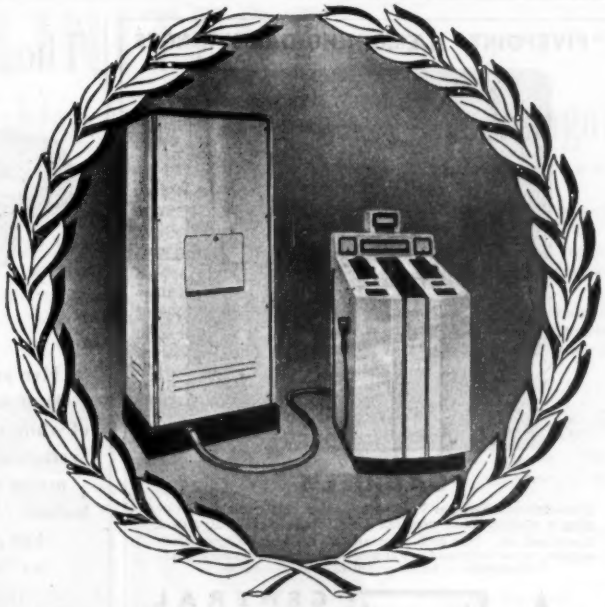

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17 (223A)

Fig. 1

Fig. 2

WELL-LEG TRACTION

Using Gypsona P.O.P. Bandages

MARCH 6TH. — Patient aged 66, sustained transtrochanteric fracture of the left femur. (Fig. 1.)

MARCH 6TH. — Fracture reduced and fixed in modification of the well-leg traction technique. Using Gypsona, a snug-fitting plaster casing was applied and anchored to the uninjured leg (Fig. 3). X-ray showed good reduction, which was maintained satisfactorily without need for any change of plaster during the two months in which it was retained.

APRIL 30TH. — X-ray examination showed good position and good callus formation proceeding (Fig. 2).

COMMENT. This method obviates the necessity for pins transfixing the heel or tibia, it enables the patient to sit up in bed, and thus materially reduces the risk of hypostatic pneumonia and pressure sores. It is essential that during fixation of the cross struts the injured leg is pulled, and the well-leg pushed, so that the top of the plaster is firm against the tuber ischii.

These details and illustrations are of an actual case. T. J. Smith & Nephew, Ltd., of Hull, manufacturers of Gypsona P.O.P. and Elastoplast bandages, publish this instance — typical of many — in which their products have been used with success.

Fig. 3

"FIVEPOINT" HÆMORRHOIDAL SYRINGES

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Hæmorrhoidal Syringes 3 c.c. with Bayonet catch nozzle and two plug-in stainless steel needles. Complete in nickel-plated case. Combined set. One each 3 c.c. and 10 c.c. with Bayonet catch nozzles, two straight and one angled plug-in stainless steel needles. Complete in nickel-plated case as illustrated.

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du MAURIER

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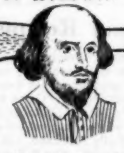
"Whether 'tis nobler in the mind to suffer
the slings and arrows of outrageous fortune
Or to take arms against a sea of troubles,
And by opposing end them?—to sleep—
.....—'tis a consummation devoutly
to be wish'd..."

HAMLET ACT III Sc.1



Hamlet's soliloquy is indicative of a mind so sorely troubled as to border on a state of melancholia. To a lesser degree the strain and difficulties inherent in our daily lives are responsible for many cases of anxiety neurosis and mental stress, resulting in restless and troubled sleep.

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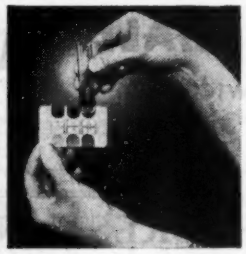

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This Registered Hospital is situated in 130 acres of park and pleasure grounds. Voluntary patients, who are suffering from incipient mental disorders or who wish to prevent recurrent attacks of mental trouble; temporary patients, and certified patients of both sexes are received for treatment. Careful clinical, biochemical, bacteriological, and pathological examinations. Private rooms with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

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DR. NEIL HAMILTON FAIRLEY, C.B.E., M.D., F.R.C.P., F.R.S., will deliver the CROONIAN LECTURES on TUESDAY, 3RD MAY, and THURSDAY, 5TH MAY, 1949, at 5 P.M., at the College, Pall Mall East, S.W.1.

Subject: "Malaria, with special reference to certain experimental clinical and chemotherapeutic investigations."

Any member of the medical profession admitted on presentation of card.

By order of the President.
H. E. A. BOLDERO, Registrar.

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The next Course of Instruction for the Certificate and Diploma in Public Health of the University of Birmingham will begin in OCTOBER, 1949. Candidates eligible for admission are registered medical practitioners who have been qualified for not less than 2 years. Since arrangements include provision for special instruction for candidates who wish to work in the fields of child health, industrial health, or tuberculosis, as well as in public health practice, the numbers are limited to approximately 20.

A syllabus giving details of courses, admission fees, &c., and forms of application, may be obtained from the Dean, Medical School, Hospitals Centre, Birmingham, 15.

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Courses for the above, commencing in OCTOBER next, will be held if a sufficient number of postgraduate students apply. Although there are no courses and no Department in Industrial Medicine in Wales the Certificate in Public Health may exempt from Part I of the course in Industrial Medicine held elsewhere.

Inquiries should be addressed immediately to the Professor of Preventive Medicine, The Parade, Cardiff, and applications should be sent to the Secretary of the School, 34, Newport-road, Cardiff.

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Summer Session, 1949

1. A course of Lectures in DERMATOLOGY will be given during MAY and JUNE at 5 P.M. In addition there will be a short series of lecture-demonstrations in MYCOLOGY during this period.

2. **Syllabus**

(*a*) **General Lectures:**

1949		*Subject*	*Lecturer*
Tues.	May 3	Psoriasiform Eruptions	Dr. F. R. BETTLEY
Thurs.	May 5	Acne	Dr. H. CORSI
Tues.	May 10	The Sclerodermas	Dr. G. B. DOWLING
Thurs.	May 12	Ano-genital Pruritus	Dr. B. RUSSELL
Tues.	May 17	Sex Hormones in Dermatology	Dr. D. I. WILLIAMS
Tues.	May 24	Choice of Vehicles for Topical Application	Dr. W. N. GOLDSMITH
Tues.	May 31	Lupus Erythematosus	Dr. H. J. WALLACE
Thurs.	June 2	Complications in Eczema	Dr. G. B. MITCHELL-HEGGS
Tues.	June 7	Pigmentary Conditions of the Skin	Dr. I. MUENDE
Thurs.	June 9	Cutaneous Syphilis	Dr. J. L. FRANKLIN
Tues.	June 14	Drug Eruptions	Dr. L. FORMAN
Tues.	June 21	Varicose Eczema, Ulceration, &c.	Mr. A. K. MONRO
Tues.	June 28	Background of Occupational Dermatoses	Dr. R. M. B. MACKENNA
Thurs.	June 30	Physio- and Electro-therapy	Dr. R. T. BRAIN

(*b*) **Mycology Lecture-demonstrations:**

Wed.	May 18	Pathological Technique in Mycology	Dr. CLARA WARREN
Wed.	June 1	Microsporon Infections	
Wed.	June 15	Trichophyton Infections	
Wed.	June 29	Systemic Mycological Infections	

3. Fees payable in advance to the Secretary of the Institute:
(*a*) General Lectures: All lectures in May and June, 5 guineas: lectures in May, 3 guineas; lectures in June, 3 guineas.
(*b*) Mycology Lecture-demonstrations: 3 guineas.

J. E. M. WIGLEY, M.B., F.R.C.P., Dean.

UNIVERSITY OF LONDON

A Lecture on "BACTERIOPHAGE AND ANTIBIOSIS" will be given by Prof. A. GRATIA (University of Liége) at 5.30 P.M. on MONDAY, 25TH APRIL, at the London School of Hygiene and Tropical Medicine, Keppel-street, Gower-street, W.C.1.

Admission free, without ticket.

JAMES HENDERSON, Academic Registrar.

IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY

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A course of 8 Lectures by B. K. JOHNSON, D.I.C., on "MICROSCOPY" will be given on TUESDAYS and THURSDAYS at 4 P.M., commencing on TUESDAY, 26TH APRIL, 1949. The lectures, which will be accompanied by practical demonstrations, will include modern advanced methods in microscopy. They will be suitable for those having to use the microscope in technical practice.

Application for admission should be made to the Registrar of the Imperial College, Prince Consort-road, S.W.7. The fee is £2 2s. for the lectures. Students of the College, and Inter-collegiate students (on production of an Inter-collegiate ticket), will be admitted free.

NATIONAL HOSPITAL, Queen-square, London, W.C.1

INSTITUTE OF NEUROLOGY

COURSE IN NEUROSURGERY—30TH MAY–9TH JULY, 1949

A 6 weeks' full-time Postgraduate Course in Neurosurgery will be held from 30th May till 9th July, 1949. The course will consist of lectures, clinical demonstrations, pathological demonstrations, outpatient clinics, and a limited number of ward rounds. Attendance at operations on certain days may be arranged at the discretion of the surgeons.

Fee 15 guineas for the course.

Applications for places and for further information should be made to the Dean.

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INSTITUTE OF NEUROLOGY

EXTRA LECTURES

The following addresses will be given in the Lecture Theatre at the National Hospital at 5 P.M.:—

Monday, 30th May	Prof. H. OLIVECRONA, Serafimerlasarettet, Stockholm	Arteriovenous Aneurysms of the Brain
Tuesday, 31st May	Prof. H. KRAYENBÜHL, Neurochirurgische Universitäts-klinik, Zürich	The Hemiplegic Patient as seen by the Neurosurgeon
Thursday, 2nd June	Prof. A. M. BOYD, Department of Surgery, University of Manchester	Intermittent Claudication
Thursday, 9th June	Prof. Sir HUGH CAIRNS, Radcliffe Infirmary, Oxford	Surgical Principles in Intracranial Surgery
Thursday, 30th June	Prof. G. JEFFERSON, Department of Neurosurgery, University of Manchester	Rathke's Pouch Tumours
Thursday, 7th July	GEOFFREY KEYNES, Esq., F.R.C.S., St. Bartholomew's Hospital, London	The Surgical Treatment of Myasthenia Gravis
Date to be announced later	Prof. RENÉ LERICHE, Collège de France, Paris	Some New Facts on the Painful Stump

The above lectures are available to the postgraduate students taking the full-time course in neurosurgery, as well as to the Registrars, Clinical Clerks, and Residents at the Hospital, without charge.

A number of vacancies are also present, the fee for the series being 3 guineas (1 guinea for a single lecture).

Applications should be made to the Dean.

SOCIETY FOR THE STUDY OF ADDICTION

ANNUAL GENERAL MEETING

R. D. NEWTON, M.A., D.M., B.P.M., will read a paper entitled "ALCOHOLISM AS A NEUROTIC SYMPTOM," at The Medical Society of London, 11, Chandos-street, W.1, on TUESDAY, 19TH APRIL, at 4 o'clock.

HUNTERIAN SOCIETY GOLD MEDAL

The Council of the Hunterian Society have chosen as the subject for the 1949 essay "THE TREATMENT OF VARICOSE VEINS AND THEIR COMPLICATIONS." The competition is open to all General Practitioners.

Applicants are invited to apply for further details to the Hon. Secretary, C. A. FRANCIS, M.A., M.B., 75, Wimpole-street, W.1, and essays must be received by him on or before 31st December, 1949.

L.M.S.S.A.

FINAL EXAMINATION: SURGERY, 9th May, 13th June, 11th July, 1949. MEDICINE, PATHOLOGY, 16th May, 20th June, 18th July, 1949. MIDWIFERY, 17th May, 21st June, 19th July, 1949. MASTERY OF MIDWIFERY, May and November. DIPLOMA IN INDUSTRIAL HEALTH, July and December.

For regulations apply REGISTRAR, Apothecaries' Hall, Black Friars-lane, London, E.C.4.

UNIVERSITY OF LONDON. The Senate invite applications for the READERSHIP IN EXPERIMENTAL PHYSIOLOGY tenable at St. Mary's Hospital Medical School. Salary £800–£1000–£1200.

Applications (10 copies) must be received not later than 31st May, 1949, by the Academic Registrar, University of London, Senate House, W.C.1, from whom further particulars should be obtained.

THE BOARD OF GOVERNORS. Hammersmith Hospital and POSTGRADUATE MEDICAL SCHOOL OF LONDON, Ducane-road, London, W.12. There is a vacancy for PHYSICIAN in the Department of Medicine, who will also be Lecturer or Senior Lecturer in the School according to seniority and experience. Salary within the range £1600–£2500; superannuation under F.S.S.U. and family allowances. Appointment will be whole-time and for Senior Lecturer will be permanent; for the Lecturer the appointment will be for 5 years in the first instance. The candidate will be expected to undertake the duties of a general physician together with routine work and research in cardio-vascular disease.

Further particulars may be obtained from the Dean, to whom applications should be made by 7th May, 1949. Canvassing of members of the Board Advisory Appointments Committee will lead to disqualification.

THE WELSH NATIONAL SCHOOL OF MEDICINE. (University OF WALES.) Applications invited for appointment of SENIOR ASSISTANT in the Medical Unit. Appointee required to assist in all the work of the Professorial Department of Medicine as directed by the Professor and to take charge of hospital medical patients in his absence. The post is full time and the salary not less than £1200 p.a. Schemes of superannuation and family allowances apply to the appointment. The recommendations of the University Grants Committee relative to salaries of such posts have yet to be considered by the University and the question of any increase in the salary now offered remains to be determined.

Further particulars may be obtained from undersigned, by whom applications should be received not later than 7th May, 1949. F. DODSWORTH, Secretary.

34, Newport-road, Cardiff, April 4th, 1949.

UNIVERSITY OF ALBERTA. Assistant Professor of Anatomy. Salary range $3600–$4200. Duties to begin 1st September, 1949.

Applications should give age, nationality, marital status, and other relevant details; academic qualifications, experience, publications, names and addresses of persons to whom reference can be made, and a recent photograph or snapshot. Address the Dean of Medicine, University of Alberta, Edmonton, Canada.

Hospital Services : Senior Appointments

GUY'S HOSPITAL, S.E.1. Applications invited for the appointment of ASSISTANT DENTAL SURGEON to Guy's Hospital; attendance on 2 sessions per week with remuneration at rate of £200 per session, subject to revision when the new Ministry of Health scales of salaries are published. Appointment is of consultant status.

Applications (1 copy), with the names of 3 referees, should be submitted to reach the Superintendent, Guy's Hospital, S.E.1, by 27th April, 1949. In accordance with Statutory Instrument No. 1416 of the National Health Service Regulations, canvassing of Members of the Board or Advisory Appointments Committee will lead to disqualification.

KING'S COLLEGE HOSPITAL, Denmark-hill, S.E.5. Applications invited from registered medical practitioners for post of PÆDIATRIC PSYCHIATRIST in the Child Guidance Clinic of the Department of Psychological Medicine, situated at the Belgrave Hospital (King's College Hospital Teaching Group). Recognised training in all branches of child psychiatry as well as experience of adult psychiatry is essential. The appointment involves 4 sessions per week, and is senior to 2 other appointments to be made. The salary will be according to the scale to be adopted for Senior Hospital Medical Officers.

Further details obtainable from undersigned, to whom applications should be made by 10th May, 1949.

S. W. BARNES, House Governor and Secretary.

King's College Hospital.

NORTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD invite applications for whole-time appointment of PHYSICIAN, Chest Clinic, 14/18, Newton-road, Westbourne-grove, Paddington, W.2, from practitioners possessing a higher qualification in medicine and having, in addition to good general medical experience, special experience in the treatment of chest diseases and tuberculosis. Previous duties in a chest clinic will be a recommendation. Duties will include responsibility for the Chest Clinic Service for the Metropolitan Boroughs of Paddington and Kensington and clinical charge of beds at St. Charles' Hospital, Ladbroke-grove, W.10. So far as the Chest Clinic duties are concerned, the appointment will be the joint responsibility of the Regional Hospital Board and the London County Council. Salary, which will be reviewed in the light of the Spens recommendations, will be £1500 p.a. The service conditions finally agreed between the profession and the Ministry of Health will apply to the post, but in the meantime it will be subject to the interim terms and to the National Health Service (Superannuation) Regulations, 1947.

Applications, stating age, qualifications, experience, and present appointment, with the names of 3 referees, should reach the Secretary, North-West Metropolitan Regional Hospital Board, 11A, Portland-place, W.1, by 27th April, 1949. Canvassing will disqualify, but candidates are invited to visit the Clinic and Hospital by direct appointment.

Provincial

SOUTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD invite applications from physicians with experience in chest diseases, and pulmonary tuberculosis in particular, for holiday LOCUM duties at chest clinics, sanatoria, &c., in the South-West Metropolitan Region, which includes the counties of Hampshire and Dorset. Continuous employment to suitable applicants may be arranged for 5 months commencing May, 1949. Remuneration £1000–£1200 p.a., according to experience.

Applicants should forward particulars of age, qualifications, and experience to the Secretary (S.D.1), South-West Metropolitan Regional Hospital Board, 11A, Portland-place, London, W.1, from whom further details may be obtained if necessary.

BIRMINGHAM REGIONAL HOSPITAL BOARD invite applications from registered medical practitioners for post of Whole-time NON-RESIDENT SURGEON to the Lichfield, Sutton and Tamworth Group of Hospitals (637 Beds). Candidates must be Fellows of the Royal College of Surgeons. Salary £1500–£50–£1700 p.a., subject to adjustment in the light of any agreement on a national basis for revised rates of remuneration. Appointment subject to National Health Service (Superannuation) Regulations, 1947, the passing of a medical examination, and to the terms and conditions of service subsequently agreed by the Ministry of Health.

Applications, giving full particulars of name, age, nationality, qualifications, and details of present and previous appointments, with the names of 3 referees, should be sent to the Secretary, Birmingham Regional Hospital Board, 10, Augustus-road, Edgbaston, Birmingham, 15, to be received by 25th April, 1949. Canvassing of members of the Birmingham Regional Hospital Board or of the Advisory Appointments Committee will lead to disqualification, but this does not preclude candidates from visiting the hospitals in the group.

BIRMINGHAM REGIONAL HOSPITAL BOARD invite applications from registered medical practitioners for post of Whole-time NON-RESIDENT OPHTHALMIC SURGEON to the Selly Oak Group of Hospitals, Birmingham. A Diploma in Ophthalmology is necessary. Salary £1500–£50–£1700 p.a., subject to adjustment in the light of any agreement on a national basis for revised rates of remuneration. Candidates should be preferably under 40 years of age. Successful candidate will be required to institute an Ophthalmic Department at Selly Oak Hospital (1114 Beds), the general hospital serving the group, to meet the demands of a large industrial population in the southern part of the City of Birmingham. Appointment subject to National Health Service (Superannuation) Regulations, 1947, the passing of a medical examination, and to the terms and conditions of service subsequently agreed by the Ministry of Health.

Applications, giving full particulars of name, age, nationality, qualifications, and details of present and previous appointments, with the names of 3 referees, should be sent to the Secretary, Birmingham Regional Hospital Board, 10, Augustus-road, Edgbaston, Birmingham, 15, to be received by 25th April, 1949. Canvassing of members of the Birmingham Regional Hospital Board or of the Advisory Appointments Committee will lead to disqualification, but this does not preclude candidates from visiting the hospitals in the group.

NARBOROUGH. CARLTON HAYES HOSPITAL, Narborough, near LEICESTER. SHEFFIELD REGIONAL HOSPITAL BOARD invite applications from registered medical practitioners, with a higher qualification in psychiatry for post of DEPUTY MEDICAL SUPERINTENDENT at above Hospital. Salary at interim rate of £1200 p.a.; a house is available at a rent of £50 p.a. Post subject to National Health Service (Superannuation) Regulations, 1947/48, to the passing of a medical examination, and to the terms and conditions of service subsequently agreed by the Ministry of Health.

Applications, giving name, age, qualifications, and details of past and present appointments, with the names of 3 referees, should be forwarded to the Secretary, Sheffield Regional Hospital Board, Fulwood House, Old Fulwood-road, Sheffield, 10, to be received by 8th May, 1949. Canvassing of Members of the Board or of the Appointments Advisory Committee will be a disqualification.

SCOTLAND. WESTERN REGIONAL HOSPITAL BOARD. BOARD OF MANAGEMENT FOR GLASGOW VICTORIA HOSPITALS. Applications invited for appointment of 2 Whole-time NON-RESIDENT ANÆSTHETISTS to work within the Glasgow Victoria Hospital group. Salary £1000 p.a., subject to retrospective adjustment in the light of any agreement on a national basis of revised rates of remuneration. Appointments subject to the National Health Service (Scotland) (Superannuation) Regulations, 1948.

Applications, which should give details of age, training, and experience, with the names of 3 referees, should be sent to the Secretary, Board of Management for Glasgow Victoria Hospitals, 40, St. Vincent-place, Glasgow, C.1, by 14th May, 1949.

WEST HARTLEPOOL AND SOUTHERN PART OF DURHAM COUNTY. NEWCASTLE UPON TYNE REGIONAL HOSPITAL BOARD. CHEST PHYSICIAN (whole time) to take administrative and clinical charge of the chest diseases service in the above area. Candidates must be of specialist status and be well experienced in the diagnosis and treatment of chest diseases, including tuberculosis. Salary £1600 p.a., subject to retrospective increase according to nationally agreed scales. Appointment subject to National Health Service (Superannuation) Regulations, 1947, to medical examination and to the terms and conditions of service subsequently agreed by the Ministry of Health.

Applications, with copies of 1–3 recent testimonials and/or names of 1–3 referees to be sent to the Senior Administrative Medical Officer, Newcastle upon Tyne Regional Hospital Board, "Dunira," Osborne-road, Newcastle upon Tyne, 2, by 30th April, 1949. Canvassing will disqualify.

AUCKLAND HOSPITAL BOARD, New Zealand. Applications invited from suitably qualified medical practitioners for position of SENIOR E.N.T. SURGEON, Part-time Visiting Medical Staff, Auckland Hospital. Salary £500 p.a. Appointment is for the period ending 31st March, 1950. (Part-time Visiting Staff are elected for a period of 2 years, the present term expiring on 31st March, 1950.) Successful applicant required to enter into an agreement covering the conditions of his appointment.

Form of application and memorandum and details of agreement may be obtained from the office of the High Commissioner for New Zealand, 415, The Strand, London, W.C.2. Applications close with undersigned at the Office of the Board, Kitchener-street, Auckland, New Zealand, at noon on Wednesday, 25th May, 1949. R. F. GALBRAITH, Secretary.

Hospital Services : Junior Appointments

ALBERT DOCK HOSPITAL AND FRACTURE CLINIC. There is an immediate vacancy for HOUSE SURGEON (B2) to assist the Resident Surgical Officer and to take charge of beds reserved for emergency surgical and medical cases. Salary £300 p.a., with full residential emoluments. R practitioners holding A posts may apply, when appointment will be limited to 6 months.

Applications, which should be made immediately to undersigned, are invited from registered British medical practitioners.

F. A. LYON, Secretary to the
Seamen's Hospitals Management Committee.

Dreadnought Hospital, Greenwich, S.E.10.

BATTERSEA GENERAL HOSPITAL, Battersea Park, S.W.11. BATTERSEA AND PUTNEY GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE PHYSICIAN (B2) for 6 months as from the 15th May, 1949. Salary £200 p.a., with full residential emoluments.

Applications, stating age, nationality, qualifications, and experience, with 2 recent testimonials, should be sent as soon as possible to the administrative officer at the Hospital.

BATTERSEA GENERAL HOSPITAL, Battersea Park, S.W.11. BATTERSEA AND PUTNEY GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, CASUALTY OFFICER (B2) for 6 months as from 22nd May, 1949. Salary £150 p.a., with full residential emoluments.

Applications, stating age, nationality, qualifications, and experience, with 2 recent testimonials, should be sent as soon as possible to the Administrative Officer at the Hospital.

BATTERSEA GENERAL HOSPITAL, Battersea Park, S.W.11. BATTERSEA AND PUTNEY GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, Part-time CASUALTY OFFICER (non-resident) for 6 months as from 31st May, 1949. Times are Monday to Friday inclusive 9.30 A.M.–5 P.M. Salary £150 p.a., and meals on duty.

Applications, stating age, nationality, qualifications, and experience, with 2 recent testimonials, should be sent as soon as possible to the Administrative Officer at the Hospital.

CONNAUGHT HOSPITAL, Walthamstow, E.17. (120 Beds.) CASUALTY OFFICER (A) required at above Hospital, post now vacant. Appointment limited to 6 months, and remuneration at rate of £180 p.a., plus full residential emoluments.

Applications, stating age, qualifications, experience, and the applicant's position in relation to military service, to be addressed to the Secretary, Hospital Management Committee, Forest Group No. 11, Langthorne-road, Leytonstone, E.11.

CONNAUGHT HOSPITAL, Walthamstow, E.17. (120 Beds.) Required, HOUSE SURGEON (A), post now vacant. Appointment limited to 6 months. Remuneration £180 p.a., plus residential emoluments.

Applications, stating age, qualifications, experience, with copies of 2 testimonials, and containing information as to the applicant's position in relation to military service, should be addressed to the Secretary, Hospital Management Committee, Forest Group No. 11, Langthorne-road, Leytonstone, E.11.

EAST HAM MEMORIAL HOSPITAL. Required, Casualty Officer AND ORTHOPÆDIC HOUSE SURGEON (Male or Female), combined with the post of Deputy Resident Surgical Officer (B1), non-resident, for 6 months as from date of appointment. Salary £300 p.a., with the usual living-out allowance.

Applications, stating age and experience, with copies of testimonials, should be sent by 23rd April, 1949, to the Secretary, West Ham Group Hospital Management Committee, c/o Queen Mary's Hospital for the East End, Stratford, London, E.15.

FINCHLEY MEMORIAL HOSPITAL, Granville-road, Finchley, N.12. Required, RESIDENT HOUSE SURGEON (B2). Salary £250 p.a., plus emoluments £100 p.a. R practitioners holding A posts may apply, when appointment will be limited to 6 months.

Apply forthwith to the Secretary, FM/HS, Barnet Group Hospital Management Committee, 1, Wellhouse-lane, Barnet.

FRIERN HOSPITAL, New Southgate, N.11. Friern Hospital MANAGEMENT COMMITTEE. Applications invited for appointment of Whole-time ASSISTANT PSYCHIATRIST at above Hospital. Applicants must have had considerable experience of psychiatry and possess suitable qualifications. Successful candidate required to undertake outpatient duties and to assist in the administration of the Hospital. Salary, which may be revised in the light of the Spens recommendations, will commence at £900 p.a. There are no emoluments, and married quarters are not available at the Hospital. Appointment, which is to the permanent staff, is subject to the provisions of the National Health Service (Superannuation) Regulations, 1947.

Applications, stating age, qualifications, and experience, with the names of 3 referees, should reach the Physician-Superintendent, Friern Hospital, N.11, by 30th April, 1949. Canvassing in any form will disqualify, but prospective candidates are invited to visit the Hospital by appointment with the Physician-Superintendent.

HACKNEY HOSPITAL. Applications invited for following appointments:—

(*a*) CASUALTY AND RECEIVING WARD OFFICER (B2), post vacant immediately. Salary £400 p.a., plus full residential emoluments. R practitioners holding A posts may apply, when appointment will be limited to 6 months.

(*b*) 2 HOUSE SURGEONS (A).

2 HOUSE PHYSICIANS (A).

Posts vacant in the near future. Appointments for 6 months. Salaries £250 p.a., plus full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years of age not having held an A post, will be considered.

Applications, specifying for which vacancy application is made, should be submitted as soon as possible to the Secretary, Hospital Management Committee (Hackney Group) No. 6, Group Administrative Offices, Hackney Hospital, E.9.

FULHAM HOSPITAL, St. Dunstan's-road, Hammersmith, W.6. (A Hospital of the Fulham and Kensington Group.) HOUSE SURGEON (A) required. Salary £200 a year, with full residential emoluments. Successful candidate required to commence duty 9th May, 1949. The position is subject to review on the implementation of the Spens report. Practitioners within 3 months of qualification and liable under the National Service Acts may apply when appointment will be limited to 6 months.

Applications should be made to the Secretary (L.116), Fulham and Kensington Hospital Management Committee, St. Mary Abbots Hospital, Marloes-road, Kensington, W.8, by 25th April, 1949.

HACKNEY HOSPITAL. Resident Obstetric Registrar (B1) required at once. Post recognised for M.R.C.O.G. Salary in the first instance at rate of £530 p.a., plus board, lodging, and laundry.

Applications, stating age, qualifications, and experience, with copies of recent testimonials, to be sent as soon as possible but not later than 23rd April, to the Secretary, Hackney Group No. 6 Hospital Management Committee, 230, Homerton High-street, E.9.

HACKNEY HOSPITAL. Resident Obstetric and Gynæcological OFFICER (B2) required at once. Post recognised for M.R.C.O.G. Salary £400 p.a., plus full residential emoluments. R practitioners holding A posts may apply. Appointment limited to 6 months for R practitioners.

Applications, with copies of recent testimonials, should be submitted as soon as possible but not later than 23rd April, to the Secretary, Hackney Group No. 6 Hospital Management Committee, 230, Homerton High-street, E.9.

HACKNEY HOSPITAL, E.9. Required, Anæsthetic Registrar (B1), post vacant immediately. Salary in the first instance is at rate of £530 p.a., plus board, lodging, and laundry.

Applications, stating age, qualifications, and experience, should be sent as soon as possible to the Secretary, Hackney Group No. 6 Hospital Management Committee, 230, Homerton High-street, E.9.

HAMPSTEAD GENERAL HOSPITAL. The Green, N.W.3. Required, RESIDENT CASUALTY SURGICAL OFFICER (B2), Male or Female, post vacant now, tenable for 6 months at the main Outpatient Department, Camden Town, N.W.1. Salary £350 p.a., with board, lodging, and laundry.

Applications to be made on the prescribed form, with copies of 3 recent testimonials, to be returned as soon as possible.

KENNETH A. F. MILES, House Governor.

LONDON JEWISH HOSPITAL, Stepney Green, London, E.1. Required, RESIDENT HOUSE PHYSICIAN (A). Salary £250 p.a., with full residential emoluments. To R practitioner appointment limited to 6 months.

Applications should be addressed to the Secretary, Stepney Group Hospital Management Committee, Administrative Offices, Raine-street, Wapping, E.1.

METROPOLITAN EAR, NOSE AND THROAT HOSPITAL, 14/16, Granville-place, W.1, and 4/5, Collingham-gardens, S.W.5. (A Hospital of the Fulham and Kensington Group.) Required, JUNIOR E.N.T. REGISTRAR (B2). Salary £400 a year, plus £150 a year non-resident allowance. E.N.T. experience essential, together with surgical qualification. Duties will include attendance at clinics and operating sessions, assist E.N.T. Surgeons and act for them in their absence, and be responsible, as required, for the analysis of medical records. Appointment for 1 year in the first instance. R practitioners holding A posts 6 months. The position is subject to review on the implementation of the Spens reports.

Applications, giving full particulars, and the names of 3 referees, should be made to the Secretary (L.111), Fulham and Kensington Hospital Management Committee, St. Mary Abbots Hospital, Marloes-road, Kensington, W.8, by 26th April, 1949.

MOORFIELDS' WESTMINSTER AND CENTRAL EYE HOSPITAL (Moorfields Branch), City-road, London, E.C.1. Applications invited for post of SIXTH HOUSE SURGEON (B1), non-resident. Salary £250 p.a., plus payment of reasonable living expenses. Appointment for 4 months from 1st July, 1949, and the holder of the post at the completion of that time will be eligible for appointment as Fifth, Fourth, Third, Second, and subsequently as Senior Resident Officer for similar periods, subject to the approval of the Central Medical War Committee. Suitably qualified R practitioners holding B2 appointments, also those holding B1 and ineligible for H.M. Forces, are invited to apply.

Applications, with testimonials, stating age and qualifications, should be submitted on official form obtainable from undersigned, and must be received by 30th April, 1949.

A. J. M. TARRANT, House Governor.

MEMORIAL HOSPITAL, Shooters Hill, London, S.E.18. Required, CASUALTY OFFICER (B1). Appointment for 6 months at a salary of £350 p.a., with full residential emoluments. R practitioners holding B1 posts not considered unless ineligible for H.M. Forces.

Applications to be sent immediately to J. I. COXON INCE, Secretary, Woolwich Group Hospital Management Committee, Memorial Hospital, Shooters Hill, London, S.E.18.

MANOR HOUSE HOSPITAL, Golders Green, London, N.W.11, requires RESIDENT SURGICAL OFFICER (B1), as from 5th May. Salary £400 p.a. 6 months' appointment, renewable. Surgical or orthopædic experience desirable.

Applications, stating age, nationality, qualifications with dates, with copies of 3 recent testimonials, to the Secretary, Mr. P. F. POLLARD.

PADDINGTON HOSPITAL, 285, Harrow-road, London, W.9. PADDINGTON GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, 2 HOUSE SURGEONS (A) from 1st June, 1949. Salary £200 p.a., with full residential emoluments.

Applications, stating age, qualifications, present position, and salary, with the names of 2 referees, should be addressed to the Medical Superintendent of the Hospital.

PADDINGTON HOSPITAL, 285, Harrow-road, London, W.9. PADDINGTON GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, ASSISTANT MEDICAL OFFICER, Class II (B2). Duties medical and institutional visiting. Salary £400 p.a., with full residential emoluments. Non-residence, with appropriate allowance, may be permitted for married man.

Applications should be forwarded to the Medical Superintendent.

POPLAR HOSPITAL, East India Dock-road, E.14. Bow Group HOSPITAL MANAGEMENT COMMITTEE. Required, CASUALTY HOUSE SURGEON (A), post vacant 1st May, 1949. Salary £200 p.a., with full residential emoluments. Duties are mainly in the Casualty and Outpatient Departments in the first instance, but the applicant may be considered later for the House Surgeon appointment. R practitioners within 3 months of qualification may apply when appointment will be limited to 6 months.

Applications, with 2 recent testimonials, should be sent to the Assistant Secretary, forthwith.

PUTNEY HOSPITAL, Lower Common, S.W.15. Battersea and PUTNEY GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT HOUSE PHYSICIAN (A), Male. Appointment for 6 months from 1st June, 1949. Salary £120 p.a., with board residence.

Applications, stating age, nationality, qualifications, and experience, with names of 2 referees, should be sent to the Administrative Officer at the Hospital by 10th May, 1949.

ROYAL CANCER HOSPITAL, Fulham-road, London, S.W.3. There is a vacancy for a Full-time ANÆSTHETIC REGISTRAR (non-resident) to commence duties 1st June, 1949. Salary £650 p.a. Appointment for 1 year, eligible for re-election. As a part of the duties of appointment successful candidate will be expected to undertake research work in anæsthesia and related subjects. Preference given to candidates holding D.A.

Applications, to be made on a form which will be supplied by the House Governor and Secretary, with copies of 1–3 recent testimonials, to be sent by first post, 2nd May, 1949, to the House Governor and Secretary.

ROYAL LONDON HOMŒOPATHIC HOSPITAL, Great Ormond-street and Queen-square, W.C.1. Required, HOUSE SURGEON (A), part gynæcology, appointment now vacant, for 6 months with salary at rate of £250 p.a., and full residential emoluments. Selected candidates will be required to attend a meeting of the Medical Committee for interview.

Applications to be sent to L. J. KNOWLES, Secretary.

ROYAL NORTHERN HOSPITAL, Holloway, London, N.7. NORTHERN GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications invited from registered medical practitioners, including R practitioners holding A post for appointment of HOUSE SURGEON AND CASUALTY OFFICER (B2), vacant 2nd May, 1949, for 6 months. Salary £250 p.a., with full residential emoluments, valued for superannuation purposes at £150, plus any temporary bonus (at present £30 in cash).

Applications, stating age, qualifications with dates, and nationality, with copies of 3 recent testimonials, should be sent by 22nd April, 1949, to GILBERT G. PANTER, Secretary.

ST. GILES' HOSPITAL, Camberwell, S.E.5. Camberwell Hospitals MANAGEMENT COMMITTEE. HOUSE SURGEON (A) required. Salary £200 a year, with full residential emoluments. Appointment for 6 months, renewable up to 2 years under certain conditions. R practitioners within 3 months of qualifying may apply when appointment will be limited to 6 months.

Inquiries, and all applications, stating age, qualifications, and experience (if any), to be made to the Senior Physician (Superintendent), St. Giles' Hospital, S.E.5.

ST. PETER'S AND ST. PAUL'S HOSPITALS. St. Paul's Hospital, Endell-street, W.C.2. The office of JUNIOR RESIDENT SURGICAL OFFICER will fall vacant 1st June, 1949, and applications are invited from Male candidates on the British Register with previous experience in a similar office at a general hospital. Salary £500 p.a., plus residential emoluments. At the expiration of 6 months' term of office, and, subject to the recommendation of the Medical Committee, the Junior Resident Surgical Officer may be appointed Senior Resident Surgical Officer for a further similar period. Candidates should, therefore, be prepared, if successful, to remain at the Hospital for 12 months in all. R practitioners eligible for H.M. Forces holding B1 or A appointments, not considered.

Applications (12 copies), with 12 copies of 3 recent testimonials should be forwarded to reach the House Governor, St. Peter's Hospital, Henrietta-street, W.C.2, by 25th April, 1949.

WEST LONDON HOSPITAL, Hammersmith, W.6. (240 Beds.) (Hammersmith, West London, and St. Mark's Hospitals.) Required, RESIDENT ANÆSTHETIST (B2), Male or Female, post vacant 25th May next. Appointment for 6 months and may be terminated by 1 month's notice on either side. Salary £250–£300 p.a. (according to experience), with the usual residential emoluments. R practitioners holding A posts may apply.

Applications, with particulars of age, nationality, medical school, qualifications with dates, and experience, with copies of 3 testimonials must reach me by first post, 7th May. Please state 'phone number, if any.

C. R. LOCKHART, Secretary, West London Hospital.

WEST LONDON HOSPITAL, Hammersmith, W.6. (240 Beds.) (Hammersmith, West London, and St. Mark's Hospitals.) Required, HOUSE SURGEON (A), Male or Female, general and gynæcological. Appointment for 6 months from 1st June next and may be terminated by 1 month's notice on either side. Salary £100 p.a., with the usual residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications, with particulars of age, nationality, medical school, qualifications with dates, and experience, with copies of 3 testimonials should reach me by first post, 7th May. Please state 'phone number, if any.

C. R. LOCKHART, Secretary, West London Hospital.

ST. NICHOLAS HOSPITAL, Plumstead, S.E.18. Required, HOUSE SURGEON (A) for duties in the General Surgical and Special Departments. Appointment for 6 months at a salary of £225 p.a., with full residential emoluments. R practitioners within 3 months of qualification may apply.

Applications, with copies of 3 recent testimonials, to be sent immediately to J. I. COXON INCE, Secretary, Woolwich Group Hospital Management Committee, Memorial Hospital, Shooters Hill, London, S.E.18.

Provincial

ABERDEEN GENERAL HOSPITALS BOARD OF MANAGEMENT. Applications invited for undernoted posts:—

Aberdeen Royal Infirmary

HOUSE SURGEON (A), general, Ward 11, resident.
HOUSE SURGEON (B2), E.N.T., Ward 12, resident.
JUNIOR CASUALTY OFFICER (A), Outpatient Department, non-resident.
JUNIOR CASUALTY OFFICER (A) or (B2), Skin and V.D. Clinics, non-resident.

Aberdeen. Woodend Hospital

HOUSE PHYSICIAN (A) or (B2), tuberculosis, resident.
HOUSE PHYSICIANS (A), general, 3 required, resident.

Aberdeen. Morningfield and Oldmill Hospitals

HOUSE PHYSICIAN (A) or (B2), Geriatric Units, resident.

Royal Aberdeen Hospital for Sick Children

HOUSE SURGEON (A), general, Ward 1, resident.
HOUSE SURGEON (A) or (B2), eye and skin, Ward 3, resident.
HOUSE SURGEON (A) or (B2), E.N.T., Ward 5, resident.

Remuneration £150 p.a., with residential emoluments. In the case of non-residential posts an allowance of £120 p.a. will be paid in lieu. Posts are superannuable under the National Health Service (Scotland) (Superannuation) Regulations, 1948, and successful candidates will be required to undergo a medical examination. Posts are tenable for approximately 6 months. Successful candidates expected to take up duty at the earliest possible date.

Applications, stating age, qualifications, with copies of 2 recent testimonials, or the names of 2 persons to whom reference can be made, should be submitted by 23rd April, 1949, to—

WILLIAM CAIE, Secretary and Treasurer.

62, Queen's-road, Aberdeen, 6th April, 1949.

ABERYSTWYTH. CARDIGANSHIRE GENERAL HOSPITAL. MID-WALES HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (A) or (B2), at above Hospital. Salary £250 p.a., plus full residential emoluments. R practitioners within 3 months of qualification or holding A posts may apply, when appointment will be limited to 6 months.

Applications, stating age, qualifications, and experience, with 3 testimonials, should be submitted to the Secretary, General Hospital, Aberystwyth.

ALTON, HANTS. LORD MAYOR TRELOAR ORTHOPÆDIC HOSPITAL MANAGEMENT COMMITTEE. Applications invited from medical practitioners for following posts now vacant at the Lord Mayor Treloar Orthopædic Hospital, Alton, Hants:—

(*a*) RESIDENT SURGICAL OFFICER. Appointment for 12 months. Salary £350–£550 p.a., according to experience.
(*b*) ASSISTANT RESIDENT SURGICAL OFFICER. Appointment for 6 months. Salary £250 p.a.

Posts provide experience in orthopædic and plastic surgery and non-pulmonary tuberculosis. Board and residence in each case provided.

Applications should be sent as soon as possible to the Secretary, with copies of testimonials or the names of 2 persons to whom reference may be made.

ALTRINCHAM GENERAL HOSPITAL, Altrincham, near Manchester. (130 Beds.) NORTH AND MID-CHESHIRE HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (B2) to commence about 27th May, 1949. Salary £300 p.a., plus usual residential emoluments. Appointment for 6 months in the first instance. R practitioners holding A posts may apply.

Applications, stating age, qualifications, &c., with copies of testimonials, should be sent to E. A. BIDEN, Secretary.

APPLEY BRIDGE. WRIGHTINGTON HOSPITAL, Appley Bridge, near WIGAN. (351 Beds—299 non-pulmonary tuberculosis, adults and children; 52 for pulmonary cases.) WRIGHTINGTON HOSPITAL MANAGEMENT COMMITTEE (Orthopædic and Pulmonary Tuberculosis). Required, HOUSE SURGEON (B2), Male or Female. The medical staff consists of: Medical Superintendent; 3 Assistants; Consultant Orthopædic Surgeon; other Visiting Surgeons and Visiting Physician. Unit for major thoracic surgery. Good facilities for reading for M.D. Salary £400 p.a., plus bonus, with board, single quarters, and laundry valued at £146. R practitioners holding A post may apply, when appointment limited to 6 months; otherwise 1 year.

Applications to Dr. J. DOBSON, Medical Superintendent, Wrightington Hospital, Appley Bridge, near Wigan, giving qualifications and names of 2 referees.

AYLESBURY. ROYAL BUCKINGHAMSHIRE HOSPITAL. AYLESBURY AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. Locum Tenens HOUSE SURGEON required 25th April for 2 weeks. Salary 10 guineas per week, plus residential emoluments. Apply to Secretary-Superintendent as soon as possible.

ASHTON-UNDER-LYNE. DISTRICT INFIRMARY. Ashton, HYDE AND GLOSSOP HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT CASUALTY OFFICER (Male) to commence duties 1st June, 1949, at a salary of £300–£350 p.a., according to experience, plus full residential emoluments. The Infirmary serves a thickly populated industrial area and the scope for experience is wide and varied. The senior resident post is recognised for the Diploma of Fellow of the Royal College of Surgeons (England).

Applications should reach undersigned by 5th May, 1949.

R. W. MCVITY, Secretary.

Astley-road, Stalybridge, Cheshire.

BATH. ST. MARTIN'S HOSPITAL. Required, Junior House SURGEON (A). Salary £250 p.a., with usual residential emoluments.

Applications should be sent to the Secretary, Bath Hospital Management Committee, Manor Hospital, Combe Park, Bath, as soon as possible.

BATH. ST. MARTIN'S HOSPITAL. Required, Junior House PHYSICIAN (B2). Salary £250 p.a., with full residential emoluments.

Applications to be sent to the Secretary, Bath Hospital Management Committee, The Manor Hospital, Combe Park, Bath, as soon as possible.

BARNSLEY. ST. HELEN HOSPITAL. Barnsley Hospital Management COMMITTEE. Required, OBSTETRICAL HOUSE SURGEON (B2) to the Obstetrical Unit (110 Beds) of the above Hospital. The post, which will be vacant 18th May, 1949, is recognised for the D.Obst.R.C.O.G. Salary £350 p.a., plus full residential emoluments, the appointment in the first instance being for 6 months.

Applications, with copies of 2 testimonials and names of 2 referees, should be submitted as soon as possible to the Obstetrician, St. Helen Hospital, Barnsley.

33, Gawber-road, Barnsley. J. H. NUNN, Secretary.

BEDFORD COUNTY HOSPITAL. Required, Resident House SURGEON (B1), post vacant early in April, 1949. This appointment, which is recognised by the Royal College of Surgeons, will be for 6 months. Salary £400 p.a., with full residential emoluments. Applications from practitioners holding B1 appointments cannot be considered unless ineligible for H.M. Forces.

Immediate applications, stating age, nationality, qualifications, previous appointments, and the names of 3 persons to whom reference may be made, if desired, should be addressed to the Secretary, Bedford Group Hospital Management Committee, St. Peter's Hospital, Bedford.

BEBINGTON. CLATTERBRIDGE GENERAL HOSPITAL, BEBINGTON, WIRRAL. CENTRAL WIRRAL HOSPITAL MANAGEMENT COMMITTEE. ASSISTANT MEDICAL OFFICER (B2) required for duty in the Pædiatric Department. Salary £230 p.a., plus residential emoluments valued at £180 p.a. R practitioners holding A posts may apply, when appointment will be limited to 6 months.

Applications, with copies of 2 testimonials, should be sent to the Medical Superintendent forthwith, from whom further details of the duties entailed may be obtained.

W. J. B. GROVES, Secretary.

BIRMINGHAM UNITED HOSPITALS invite applications for post of RESIDENT REGISTRAR (B1) to the Obstetrical and Gynæcological Department. Candidates must be registered medical practitioners and have held a resident appointment in a teaching hospital. Present salary for candidates possessing the Membership of the Royal College of Obstetricians and Gynæcologists £550 p.a., rising by £50 annually to £650 p.a. (otherwise £250 p.a.), with full residential emoluments, subject to any national scales which may come into operation. Suitably qualified R practitioners holding B2 appointments also those holding B1 posts and ineligible for H.M. Forces are invited to apply.

Applications, stating age, qualifications, experience, nationality, and present post, with copies of 3 recent testimonials, should be sent to the undersigned (from whom all further information can be obtained) by 7th May.

G. HURFORD, Secretary, United Birmingham, Hospitals.
The Queen Elizabeth Hospital, Birmingham, 15.

BIRMINGHAM. THE CHILDREN'S HOSPITAL, King Edward VII MEMORIAL, BIRMINGHAM, 16. THE UNITED BIRMINGHAM HOSPITALS. Required, AURAL REGISTRAR (B1). Demobilised Medical Officers are invited to apply, and preference given to candidates who are fellows of the Royal College of Surgeons and/or hold the D.C.H. Position is non-resident and carries with it a salary of £650–£50–£750 p.a., provided the candidate holds the F.R.C.S. or D.L.O., which will be subject to review with the adoption of the Ministry of Health scales of salary. Appointment for 1 year in the first instance, but is renewable for 3 years. R practitioners eligible for H.M. Forces holding B1 or A post, not considered.

Applications, stating age, nationality, qualifications, and experience, with the names of 2 referees to whom reference may be made, should be sent by 30th April, 1949, to—

N. R. WINWOOD, House Governor.

BIRMINGHAM. SELLY OAK HOSPITAL. (1181 Beds.) Birmingham (SELLY OAK) HOSPITAL MANAGEMENT COMMITTEE, GROUP NO. 25. Applications invited from registered medical practitioners for appointment of MEDICAL REGISTRAR, with remuneration as finally agreed between the profession and the Ministry of Health for trainee specialists Grade III or Grade II depending on qualifications and experience.

Applications, stating age, experience, qualifications, with copies of 3 recent testimonials, should be sent as soon as possible to the Medical Superintendent, Selly Oak Hospital, Birmingham, 29.

BIRMINGHAM. GENERAL HOSPITAL. The United Birmingham HOSPITALS. Required, Whole-time REGISTRAR (B1), non-resident, to the Casualty Department. Candidates must be registered medical practitioners and preference given to those holding a higher qualification. Salary for candidates possessing the Fellowship of the Royal College of Surgeons £650 p.a. (otherwise £350 p.a.), subject to any national scales which may come into operation. Suitably qualified R practitioners holding B2 appointments, also those holding B1 and ineligible for H.M. Forces, are invited to apply.

Applications, stating age, qualifications, experience, nationality, and present post, with copies of recent testimonials, should be sent to undersigned (from whom all further information may be obtained) by 7th May. G. HURFORD, Secretary.

Queen Elizabeth Hospital, Birmingham, 15.

BIRMINGHAM. GENERAL HOSPITAL. The United Birmingham HOSPITALS. Required, RESIDENT CLINICAL PATHOLOGIST (Male). Previous experience is not essential, but applicants should have held a resident hospital appointment. Salary £250 p.a., rising to £300 p.a. after 12 months' service. Appointment for 12 months, renewable. Further particulars can be obtained from the Director of Clinical Pathological Services. Successful candidate, if liable for service with H.M. Forces, will require the approval of the Central Medical War Committee.

Applications, stating age and nationality, and full details of qualifications, with recent testimonials, to be sent as soon as possible to G. HURFORD, Secretary.

The Queen Elizabeth Hospital, Birmingham, 15.

BIRMINGHAM. MONYHULL HALL FOR MENTAL DEFECTIVES, KINGS HEATH, BIRMINGHAM, 14. (MONYHULL GROUP.) Applications invited for RESIDENT MEDICAL OFFICER (Registrar grade) (B1). Successful candidate will have the status of a specialist in training. Salary £600 p.a., and full residential emoluments valued at £125 p.a. Salary subject to revision when the recommendations of the Spens Committee are complemented. Position subject to National Health Service (Superannuation) Regulations, 1947. Applications from R practitioners holding B1 or A posts cannot be considered unless they are ineligible for H.M. Forces.

Applications, stating age, present appointment, experience, and qualifications, with names of 3 referees, should be addressed to C. J. C. EARL, Chief Officer.

BIRMINGHAM, 18. WINSON GREEN HOSPITAL. Required, SENIOR ASSISTANT MEDICAL OFFICER (B1), Male or Female. Salary £1000 p.a. Post is non-resident. Candidates should have practical experience in modern methods of treatment and should be in possession of the D.P.M. The possession of this diploma may be waived in the case of the successful candidate provided he/she undertakes to obtain this within a reasonable time.

Applications, with copies of 2 recent testimonials, to be addressed to the Medical Superintendent, by 30th April, 1949.

BIRMINGHAM, 18. WINSON GREEN HOSPITAL. Required, HOUSE PHYSICIAN (B2), Male or Female. Salary £350 p.a., plus residential emoluments valued at £120 p.a. Post tenable for 6 months in the first instance, and may be renewed for a further 6 months. Hospital associated with Birmingham University for the teaching of psychiatry and there is ample opportunity for postgraduate study.

Applications to the Medical Superintendent by 30th April, 1949.

BIRMINGHAM (SANATORIA) GROUP HOSPITAL MANAGEMENT COMMITTEE. MEDICAL OFFICER (resident) required for locum tenens holiday duty for a period of 9 months at the Yardley Green Hospital and the Anti-Tuberculosis Centre. Salary £735 p.a., inclusive of emoluments valued at £232 10s. Experience in tuberculosis work is essential.

Apply the Chief Clinical Tuberculosis Officer, The Anti-Tuberculosis Centre, 151, Great Charles-street, Birmingham, 3.

BIRMINGHAM REGIONAL HOSPITAL BOARD invite applications from registered medical practitioners for posts of NON-RESIDENT REGISTRARS (Trainees) IN PATHOLOGY. Candidates must have had at least 12 months' postgraduate experience of which at least 6 months shall have been in a resident house appointment. There are 6 appointments to be made and each appointment will be for 2 or 3 years of which at least 9 months will be spent in the Pathological Departments of Birmingham University and the United Birmingham Hospitals. The hospital centres to which successful candidates will eventually be appointed are Birmingham (Dudley Road), Birmingham (Selly Oak), Coventry, Stoke-on-Trent, Wolverhampton, and Stafford. Remuneration £520 p.a., to be increased at the end of 6 months' service to £600 p.a., thereafter by annual increments of £50 for the remainder of the term of appointment, and will be subject to adjustment in the light of any future agreement on a national basis. Appointments subject to National Health Service (Superannuation) Regulations, 1947/48, the passing of a medical examination, and to the terms and conditions of service subsequently agreed by the Ministry of Health.

Applications, giving particulars of name, age, nationality, qualifications, and details of present and previous appointments, with the names of 3 referees, should be sent to the Secretary, Birmingham Regional Hospital Board, 10, Augustus-road, Edgbaston, Birmingham, 15, to be received by 25th April, 1949. Canvassing will lead to disqualification, but this does not debar candidates from visiting hospital/s or departments of hospital/s at which these appointments are to be made.

BIRMINGHAM ACCIDENT HOSPITAL AND REHABILITATION CENTRE, Bath-row, BIRMINGHAM, 15. BIRMINGHAM (SELLY OAK) HOSPITAL MANAGEMENT COMMITTEE, GROUP NO. 25. Required, RESIDENT ANÆSTHETIST (B1), Male or Female, post now vacant. Salary £350 p.a., with full residential emoluments, subject to review when the National Health Service scales become operative. Appointment in the first place for 6 months. Applicants should preferably be of Registrar status. There are 3 Specialist Anæsthetists on the staff. Applications from practitioners holding B1 appointments cannot be considered unless ineligible for H.M. Forces.

Applications, with 2 testimonials, should be sent to—
4th April, 1949. W. GEORGE SPENCER, Secretary.

BIRMINGHAM ACCIDENT HOSPITAL AND REHABILITATION CENTRE, Bath-row, BIRMINGHAM, 15. BIRMINGHAM (SELLY OAK) HOSPITAL MANAGEMENT COMMITTEE, GROUP NO. 25. Required, HOUSE SURGEON (A) or (B2), Male or Female, post now vacant. Appointment will, in the first place, be for 6 months. Salary for newly qualified practitioners £200 p.a., full residential emoluments; the salary for practitioners who have already held hospital appointments £300 p.a., full residential emoluments.

Applications to W. GEORGE SPENCER, Secretary.
4th April, 1949.

BIRMINGHAM ACCIDENT HOSPITAL AND REHABILITATION CENTRE, Bath-row, BIRMINGHAM, 15. BIRMINGHAM (SELLY OAK) HOSPITAL MANAGEMENT COMMITTEE, GROUP NO. 25. Required, SURGICAL REGISTRAR, Male or Female, post now vacant. Salary £350 p.a., full residential emoluments, and subject to review when the National Health Service scales become operative. Appointment will, in the first place, be for 6 months. Applications from practitioners holding B1 appointments cannot be considered unless ineligible for H.M. Forces.

Applications to W. GEORGE SPENCER, Secretary.

BIRMINGHAM. WEST HEATH AND ROMSLEY HILL SANATORIA. BIRMINGHAM (SANATORIA) GROUP HOSPITAL MANAGEMENT COMMITTEE. MEDICAL OFFICER (resident) required for locum tenens holiday duty for a period of 6 months at above Sanatoria. Salary £735 p.a., inclusive of emoluments, valued at £232 10s. Experience in tuberculosis work is essential.

Apply the Chief Clinical Tuberculosis Officer, The Anti-T.B. Centre, 151, Great Charles-street, Birmingham, 3.

BISHOP AUCKLAND. THE GENERAL HOSPITAL. (301 Beds.) SOUTH-WEST DURHAM HOSPITAL MANAGEMENT COMMITTEE. ASSISTANT RESIDENT MEDICAL OFFICERS (Female), required for general medical, surgical, obstetrical, and geriatric work. Salary grades: B2 post £380 p.a., plus residential emoluments; A post £280 p.a., plus residential emoluments. Residential emoluments valued for superannuation purposes at £150 p.a. Hospital catering increasingly for acute medical and surgical work. An Outpatient Department shortly to be established.

Applications should be sent immediately to the Medical Superintendent, The General Hospital, Bishop Auckland, co. Durham.

BLACKBURN ROYAL INFIRMARY. (244 Beds—7 Residents.) Required, RESIDENT ANÆSTHETIST (B2). Salary £350 p.a., plus full residential emoluments. R practitioners holding A post may apply.

Applications, stating age, nationality, and qualifications, with dates, with copies of 2 testimonials, to be sent to—

T. DEWHURST, Secretary,
Blackburn and District Hospital Management Committee.
Royal Infirmary, Blackburn.

BLACKBURN ROYAL INFIRMARY. (244 Beds—7 Residents.) Applications invited for post of HOUSE SURGEON (A) at a salary of £300 p.a., plus full residential emoluments. R practitioners within 3 months of qualification may apply, when appointment will be limited to 6 months.

Applications, stating age, qualifications, and nationality, with copies of 2 testimonials, to be sent to—

T. DEWHURST, Secretary,
Blackburn and District Hospital Management Committee.
Royal Infirmary, Blackburn.

BLACKPOOL. VICTORIA HOSPITAL. Blackpool and Fylde HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON to the Eye, E.N.T. Department. Appointment for 6 months and the present salary is £200 p.a., with full residential emoluments. Post recognised for the D.O.M.S. and D.L.O. Examinations.

Applications, stating qualifications, with dates, and nationality with 3 recent testimonials, should be sent to WALTER R. SMITH, Secretary to the Committee, Victoria Hospital, Blackpool.

BROMLEY HOSPITAL. (215 Beds.) Bromley Group Hospital MANAGEMENT COMMITTEE. CASUALTY OFFICER (A) required. Post tenable for 6 months. Salary £200 p.a., plus full residential emoluments.

Applications should be sent to the Administrative Officer, Bromley Hospital, Bromley, Kent.

BRADFORD. ROYAL EYE AND EAR HOSPITAL. (102 Beds.) RESIDENT AURAL HOUSE SURGEON (B2) required immediately. Salary £250 p.a., plus full residential emoluments. This post offers exceptional opportunity for training for all branches of E.N.T. work, and the Hospital is recognised by the R.C.S. for the D.L.O. R practitioners holding A posts may apply when appointment will be limited to 6 months.

Applications, stating age, nationality, qualifications, full particulars of experience and training, with copies of 3 testimonials, should be addressed to undersigned at the Royal Infirmary, Bradford, as soon as possible.

H. TRUSSON, Secretary.
Bradford A Group Hospital Management Committee.

BRADFORD ROYAL INFIRMARY. (498 Beds.) Required, Medical REGISTRAR for 12 months at a salary of £650 p.a., non-resident, vacant immediately.

Applications, stating age, qualifications, nationality, and full particulars of experience and training, with copies of testimonials should be forwarded as soon as possible to—

H. TRUSSON, Secretary,
Bradford A Group Hospital Management Committee.

BRADFORD ROYAL INFIRMARY. (498 Beds.) Resident Anæsthetists (B1) required, holding or studying for the D.A. (2 vacancies). Salary £550 p.a., plus full residential emoluments. Appointments extend for 12 months from 26th May and 1st July, 1949. Applications from practitioners holding B1 posts cannot be considered unless ineligible for H.M. Forces.

Applications, stating age, nationality, experience, and training, with copies of recent testimonials to be forwarded immediately to—

H. TRUSSON, Secretary,
Bradford A Group Hospital Management Committee.

BRIGHTON. NEW SUSSEX HOSPITAL FOR WOMEN AND CHILDREN (Incorporated), Windlesham-road, BRIGHTON, 1. (Officered by Women doctors.) BRIGHTON AND LEWES HOSPITAL MANAGEMENT COMMITTEE. Applications invited from medical Women practitioners for post of HOUSE SURGEON (A). Duties to commence from 4th April for 6 months. Salary £200 p.a.

Applications, with age, nationality, qualifications, experience, and copies of recent testimonials, must be submitted immediately to the Secretary to the House Committee.

BRIGHTON. ROYAL SUSSEX COUNTY HOSPITAL. (304 Beds.) BRIGHTON AND LEWES HOSPITAL MANAGEMENT COMMITTEE. HOUSE PHYSICIAN (B2) required, post vacant 1st June, 1949. Salary £200 p.a., with full residential emoluments. Appointment limited to 6 months in the case of R practitioners.

Applications, with copies of 3 recent testimonials, should be received by the Secretary, Group B House Committee, by 27th April, 1949.

BRIGHTON. THE ROYAL ALEXANDRA HOSPITAL FOR SICK CHILDREN. (130 Beds.) BRIGHTON AND LEWES HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (B2), to commence duties immediately. 6 months' appointment. Salary £200 p.a., with full residential emoluments. The Hospital is recognised for the D.C.H. and M.D. Examination, Branch 1.

Applications, stating age, qualifications with dates, and nationality, with copies of recent testimonials, to be sent to the Secretary to the House Committee.

BOLTON ROYAL INFIRMARY. Bolton and District Hospital MANAGEMENT COMMITTEE. Required, ASSISTANT RESIDENT SURGICAL OFFICER (B1), post vacant 1st May, 1949. Applicants should have held house appointments and had surgical experience. Salary at present £325 p.a., with full residential emoluments. Suitably qualified R practitioners holding B2 appointment, also those holding B1 and ineligible for H.M. Forces, are invited to apply.

Applications, stating age, nationality, and experience, with copies of testimonials, to be forwarded to undersigned at the Bolton Royal Infirmary. H. P. TRAVIS, Secretary.

BRISTOL. FRENCHAY PARK HOSPITAL, Frenchay, Bristol. COSSHAM/FRENCHAY HOSPITAL MANAGEMENT COMMITTEE, BRISTOL. Applications invited from registered medical practitioners for following appointments:—

HOUSE SURGEON (B2). To be attached to the Neuro-surgical Unit of the South West Region at Frenchay Hospital. Salary £365 p.a., plus full residential emoluments valued at £155 p.a. Appointments limited to 6 months in the first instance and vacant from 21st May, 1949. A further vacancy may also be available shortly. R practitioners holding A posts may apply.

HOUSE SURGEONS (B2). To be attached to the Thoracic Surgical Unit of the South West Region at Frenchay Hospital. Salary and emoluments as above. Appointments limited to 6 months in the first instance and vacant immediately. R practitioners holding A posts may apply.

Applications, stating age, nationality, qualifications, and experience, and the names and addresses of 3 referees, should be received by the Secretary, Frenchay Hospital, Bristol, by 30th April, 1949.

BRISTOL ROYAL HOSPITAL. General Hospital Branch. United BRISTOL HOSPITALS. Required, RESIDENT DERMATOLOGICAL HOUSE PHYSICIAN (B2) for 6 months commencing immediately. Salary £200 p.a.

Applications should be submitted on forms to be obtained from STEPHEN C. MERIVALE, Secretary to the Board.

Royal Infirmary Branch, Bristol, 2.

BURY. FAIRFIELD GENERAL HOSPITAL. Required, House SURGEON (A), Male or Female, post now vacant. Salary £300 p.a., with residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment will be for 6 months; otherwise renewable.

Applications should be forwarded immediately to H. WILKINSON, Secretary, Bury and Rossendale Hospital Management Committee, Bury General Hospital, Walmersley-road, Bury.

BURY. FAIRFIELD GENERAL HOSPITAL. Required, House SURGEON (B2), Male or Female, gynæcology and obstetrics, post vacant shortly. The obstetric work at this Hospital is fairly extensive, there being upwards of 1000 maternity cases p.a., abnormal as well as normal cases are accommodated. Salary £300 p.a., with residential emoluments. Appointment will, in the first instance, be for 6 months but will be subject to renewal by mutual agreement.

Applications, giving full particulars, should be forwarded immediately to H. WILKINSON, Secretary, Bury and Rossendale Hospital Management Committee, Bury General Hospital, Walmersley-road, Bury, Lancs.

BURY GENERAL HOSPITAL. (175 Beds—with postoperative annexe.) BURY AND ROSSENDALE HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (A), Male or Female, post now vacant. Salary £300 p.a., with residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months; otherwise renewable.

Applications immediately to H. WILKINSON, Secretary.

BUXTON, DERBYSHIRE. DEVONSHIRE ROYAL HOSPITAL. SOUTH MANCHESTER HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE PHYSICIAN (A), Male or Female. Salary £300 p.a., for the first 6 months and £350 p.a. thereafter, if re-appointed. Experience of physical medicine desirable. A number of research beds in connexion with the Manchester University Centre for the study of chronic rheumatism, have been provided. This post offers excellent opportunities to any Medical Officer desiring to prepare a thesis or wishing to undertake special work.

Applications, stating age, qualifications, experience, and the names of 3 people to whom reference may be made, should be submitted to the General Superintendent at the Hospital immediately. A. H. KEATES, Secretary.

CHICHESTER. ROYAL WEST SUSSEX HOSPITAL. (202 Beds.) CHICHESTER GROUP HOSPITAL MANAGEMENT COMMITTEE. CASUALTY OFFICER (A), vacant for 6 months. Salary £250, with full residential emoluments.

Apply, with full particulars and 3 testimonials, to the Secretary at the Hospital.

CANTERBURY. KENT AND CANTERBURY HOSPITAL. (225 Beds.) CANTERBURY GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON to the E.N.T. and Eye Departments, post now vacant. Appointment recognised for the D.L.O. and D.O.M.S. Examinations. Salary £200 p.a., with full residential emoluments. Duties will include some casualty work. R practitioners holding A posts may apply when appointment will be limited to 6 months.

Applications, with copies of 3 recent testimonials, should be sent to undersigned, at the Hospital.

M. D. KAY, Chief Administrative Officer.

CAMBRIDGE. REGIONAL BLOOD TRANSFUSION CENTRE. EAST ANGLIAN REGIONAL HOSPITAL BOARD invite applications for appointment of Whole-time ASSISTANT MEDICAL OFFICER (B1) at above Centre. Duties include serological work in the laboratories and attendance at blood collecting sessions. Salary £540–£640 p.a., according to qualifications and experience, subject to terms and conditions of service subsequently to be agreed by the Minister of Health. Appointment subject to National Health Service (Superannuation) Regulations, 1947.

Applications, stating age, qualifications, experience, and present appointment, with the names of 3 referees, should reach undersigned by 30th April, 1949.

K. V. F. MORTON, Secretary.

117, Chesterton-road, Cambridge.

CARSHALTON, SURREY. ST. HELIER HOSPITAL. St. Helier GROUP OF HOSPITALS. Required, ANÆSTHETIST REGISTRAR (B1) for duty primarily at above Hospital but to be available, if required, for duty at other hospitals in the group. Details of the group will be supplied on application. Preference given to candidates holding D.A. Commencing salary, according to qualifications and experience, on scale £550–£50–£650–£75–£725 p.a., plus emoluments valued at £150 p.a. or cash in lieu. R practitioners eligible for H.M. Forces holding B1 post, not considered.

Applications, stating age, qualifications, and experience, with a copy of 2 recent testimonials and the name of 1 referee, should be sent to CAO/HMC, St. Helier Hospital, Carshalton, Surrey.

CHELTENHAM GENERAL EYE AND CHILDREN'S HOSPITAL. Required, HOUSE SURGEON (A), Male. Salary £225 p.a., with full residential emoluments. R practitioners within 3 months of qualification and liable for service under the National Service Act may apply, when appointment will be for 6 months; otherwise renewable.

Applications should be sent to—

S. T. DAVIS, Secretary-Superintendent.

CHELTENHAM. SUNNYSIDE MATERNITY HOSPITAL. Applications invited from registered medical practitioners, including R practitioners holding A posts, for appointment of RESIDENT OBSTETRIC OFFICER (B2), vacant 6th May, 1949. The Hospital, which is recognised for the purpose of training for the D.Obst.R.C.O.G., has 61 Beds and deals with the majority of abnormal midwifery cases in North Gloucestershire. Appointment for 6 months and the commencing salary is at rate of £250 p.a., with full residential emoluments.

Applications, stating age, qualifications, and experience, with copies of 3 recent testimonials, should be sent to the Secretary, Cheltenham Hospital Group Management Committee, General Hospital, Cheltenham.

CHELMSFORD. ST. JOHN'S HOSPITAL, London-road, Chelms-FORD. HOUSE PHYSICIAN (A) required to commence 1st May. Salary £200 p.a., plus emoluments.

Apply to Secretary, Hospital Management Committee—Chelmsford Group, London-road, Chelmsford.

CHELMSFORD AND ESSEX HOSPITAL, London-road, Chelms-FORD. HOUSE SURGEON (A) required to commence immediately. Salary £200 p.a., plus emoluments.

Apply to Secretary, Hospital Management Committee—Chelmsford Group, London-road, Chelmsford.

CHELMSFORD AND ESSEX HOSPITAL. Resident Surgical OFFICER required to commence 1st May, 1949, and the period of appointment being 12 months. Salary £650–£750, plus emoluments, according to experience. Preference given to candidates holding diploma of F.R.C.S. Applicants should have had good general experience and having previously held resident appointments. Flat accommodation probably available.

Applications, stating nationality, age, qualifications, and experience, and the names of 2 referees, to be received by Secretary, Hospital Management Committee—Chelmsford Group, London-road, Chelmsford, by 19th April.

CHELMSFORD. BROOMFIELD HOSPITAL. (308 Beds.) CHELMSFORD GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, JUNIOR MEDICAL OFFICER (B1). The Hospital is modern; well-equipped for the treatment of pulmonary tuberculosis, mainly in men; and a centre for tuberculosis thoracic surgery. Present salary £450–£25–£650, plus bonus of £29 18s., with residential emoluments valued at £160 p.a., and is subject to review when national scales are introduced. Appointment for 1 year in the first instance with opportunity for renewal. R practitioners holding B2 appointments, also those holding B1 and ineligible for H.M. Forces, may apply.

Applications, stating age, giving details of qualifications and experience, and enclosing copies of 3 testimonials, should be addressed to the Medical Superintendent.

CHESTER. CITY HOSPITAL. (250 Beds.) Required, House PHYSICIAN (A), Male or Female. Appointment for 6 months; duties to commence immediately. Salary £225 p.a., plus full residential emoluments.

Applications, stating age, nationality, experience, qualifications with dates, with 3 recent testimonials, should be sent by 27th April, 1949, to—

P. R. J. ARNOLD, Secretary, XIII Chester and District Hospital Management Committee.

4, King's Buildings, Chester.

CHESTER ROYAL INFIRMARY. (227 Beds.) Required, House SURGEON (A), Male or Female, to the Orthopædic Department. Appointment for 6 months, duties to commence immediately. Salary £225 p.a., plus full residential emoluments. Appointment subject to National Health Service (Superannuation) Regulations, 1947, and to medical examination. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications, stating age, experience, nationality, qualifications with dates, with 3 recent testimonials, should be sent as soon as possible to—

P. R. J. ARNOLD, Secretary, XIII Chester and District Hospital Management Committee.

4, King's Buildings, Chester.

CHESTER ROYAL INFIRMARY. (227 Beds.) Required, Casualty OFFICER, Male or Female. Appointment for 6 months, duties to commence immediately. Salary £300 p.a., plus full residential emoluments. Appointment subject to National Health Service (Superannuation) Regulations, 1947, and to medical examination.

Applications, stating age, experience, nationality, qualifications with dates, with 3 recent testimonials, should be sent as soon as possible to—

P. R. J. ARNOLD, Secretary, XIII Chester and District Hospital Management Committee.

4, King's Buildings, Chester.

CHATHAM. ALL SAINTS' HOSPITAL. Medway and Gravesend HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE PHYSICIAN. Salary £200 p.a., with full residential emoluments. To R practitioner the post will be limited to 6 months.

Applications, stating age, nationality, qualifications, and experience, with copies of recent testimonials, to be sent to the Surgeon-Superintendent at the Hospital as soon as possible.

CHERTSEY, SURREY. ST. PETER'S HOSPITAL. (403 Beds.) Required, RESIDENT HOUSE SURGEON (A) or (B2) for Gynæcology and Special Departments (E.N.T., &c.). Salary from £250 p.a., plus bonus and full residential emoluments. Salary based on experience and date of qualification and a salary up to £450 p.a. may be paid to suitably qualified and experienced ex-Service candidate. R practitioners within 3 months of qualification or holding A post may apply, when appointment will be limited to 6 months.

Inquiries should be made to Medical Superintendent of the Hospital, to whom applications should be sent immediately.

COLCHESTER. ESSEX COUNTY HOSPITAL. (207 Beds.) Applications invited for post of CASUALTY OFFICER AND HOUSE SURGEON (A) to the Obstetrical and Gynæcological Departments. Appointment for 6 months from 1st May. Salary £250 p.a., and residential emoluments.

Applications, and copies of 3 testimonials, should be forwarded to the Assistant Secretary.

COVENTRY GROUP NO. 20 HOSPITAL MANAGEMENT COMMITTEE. Applications invited for under-mentioned posts :—

Coventry and Warwickshire Hospital

CASUALTY SURGEON vacant 15th April, candidates must hold diploma of F.R.C.S. and should have had previous experience of casualty and accident work. Salary £800 p.a., by annual increments of £100 to £1000 p.a., non-resident. Salary subject to revision in the light of the Spens report. Appointment for 12 months in the first instance.

REGISTRAR to Radiotherapy Department. Appointment for 12 months in the first instance. Salary £775–£1000 p.a., non-resident. Candidates should preferably hold D.M.R. or D.M.R.T.

Coventry, Gulson Hospital

OBSTETRIC HOUSE SURGEON (A) or (B2). Appointment for 6 months. Salary £300 or £350 p.a., according to experience.

HOUSE SURGEON (B2). Appointment for 6 months. Salary £350 p.a., resident.

Applications, stating full details as to age, nationality, qualifications, and experience, whether married or single, with copies of 3 recent testimonials, should be addressed to the Secretary, Group 20 Hospital Management Committee, at Coventry and Warwickshire Hospital, Coventry.

COVENTRY ISOLATION HOSPITAL. Group No. 20 Hospital MANAGEMENT COMMITTEE, COVENTRY. Required, RESIDENT MEDICAL OFFICER, Male or Female, at above Hospital (148 Beds). Salary £600 p.a., with full residential emoluments (including use of self-contained flat in the Hospital but not married quarters). Appointment for 12 months in the first instance. Previous hospital experience essential and experience in infectious, children's, or E.N.T. diseases an advantage.

Applications, stating age, qualifications, and experience, with copies of 3 recent testimonials, to be sent to the Medical Superintendent at the Hospital.

CROSS HOUSES HOSPITAL, Cross Houses, near Shrewsbury. (183 Beds.) SHREWSBURY GROUP 15 HOSPITAL MANAGEMENT COMMITTEE. Locum MEDICAL OFFICER required. Post is resident and the salary 12 guineas per week.

Applications should be made to the Medical Superintendent, Cross Houses Hospital, near Shrewsbury.

DEAL. VICTORIA HOSPITAL. Required, Resident House SURGEON (B2). Salary £350 a year, with full residential emoluments. R practitioners holding A post may apply, when appointment will be limited to 6 months.

Applications, stating age, qualifications, experience, and the names and addresses of 2 responsible persons as reference to professional ability, should be addressed to the Secretary of the Hospital.

DUDLEY. THE GUEST HOSPITAL. Required, Resident Anæs-THETIST (B2), post now vacant. Salary £350 p.a., plus full residential emoluments. Appointment for 6 months in the first instance. R practitioners holding A posts may apply.

Applications, stating age, nationality, qualifications with dates, experience, and details of previous appointments, with copies of 3 recent testimonials, to H. RAYMOND HURST, Secretary, Dudley, Stourbridge and District Hospital Group, Birmingham Region, The Guest Hospital, Dudley.

DUDLEY. THE GUEST HOSPITAL. (156 Beds.) Required, House SURGEON (B2), post now vacant. Salary £300 p.a., plus full residential emoluments. Appointment for 6 months in the first instance. R practitioners holding A post may apply.

Applications, stating age, nationality, qualifications with dates, experience, and details of previous appointments, with copies of 3 recent testimonials, to H. RAYMOND HURST, Secretary, Dudley, Stourbridge and District Hospital Group, Birmingham Region, The Guest Hospital, Dudley.

DAVYHULME. PARK HOSPITAL, Davyhulme, near Manchester. (General Hospital—500 Beds.) WEST MANCHESTER HOSPITAL MANAGEMENT COMMITTEE, GROUP 14. Required, OBSTETRICAL HOUSE SURGEON (A) or (B2), Male or Female. Salary £250 p.a. for B2 appointment, and £200 p.a. for A appointment, with a cost-of-living bonus and full residential emoluments. Appointment subject to superannuation and a medical examination. The Hospital is recognised for traning for the D.Obst. R.C.O.G. Examination. R practitioners within 3 months of qualification and liable for service with H.M. Forces or holding A posts may apply, when appointment will be for 6 months; otherwise renewable for a further 6 months.

Forms of application may be obtained from the Secretary.

DEVONPORT. SOUTH DEVON AND EAST CORNWALL HOSPITAL. THE PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (A), surgery with casualty, post vacant forthwith. Salary £200 p.a., with full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications, with copies of 1–3 recent testimonials, should be sent immediately to ARTHUR R. CASH, Secretary, c/o The South Devon and East Cornwall Hospital, Greenbank-road, Plymouth.

DEWSBURY. HOSPITAL MANAGEMENT COMMITTEE NO. 11. Applications invited for following appointments vacant at hospitals within the group :

Dewsbury and District General Infirmary (116 Beds), recognised by the examining board for the Final Fellowship in Surgery. Appointments vacant beginning of April.

HOUSE PHYSICIAN (A). HOUSE SURGEON (A).

Dewsbury, Staincliffe General Hospital (314 Beds), recognised by the Examining Board for the Final Fellowship Examination, Diploma in Anæsthetics, and Diploma in Child Health.

HOUSE SURGEON (A).

HOUSE PHYSICIAN (A), including dermatology.

All appointments are for 6 months. Salary £200 p.a., with full residential emoluments.

Applications, stating full details of age, qualifications, and experience, with copies of 2 testimonials or names of 2 referees, to the Secretary to the Committee.

G. W. BATCHELOR, Secretary.

20, Oxford-road, Dewsbury, 1st April, 1949.

DODDINGTON HOSPITAL, Doddington, near March, Cambs. Required, HOUSE SURGEON. Duties, mainly general surgical, will include those of House Surgeon to the E.N.T., Surgeon, and Gynæcologist. Salary £250 p.a., with full residential emoluments. R practitioners within 3 months of qualification and liable for service with H.M. Forces may apply when appointment will be limited to 6 months.

Applications, with copies of testimonials should be sent to the Secretary, Peterborough Area Hospital Management Committee, 54, Park-road, Peterborough.

ECCLES AND PATRICROFT HOSPITAL, Eccles, near Man-CHESTER. (General Hospital—75 Beds.) Required, HOUSE PHYSICIAN (A) or (B2), Male or Female. Salary £250 p.a. for B2 post, and £200 p.a. for A post; with a cost-of-living bonus and full residential emoluments. Appointment subject to a medical examination and superannuation. The Hospital has an extensive Outpatient Department. To R practitioner appointment for 6 months, and renewable for a further 6 months.

Forms of application may be obtained from the Secretary, West Manchester Hospital Management Committee, Group 14, Park Hospital, Davyhulme, near Manchester, to whom all applications must be submitted.

EPPING. ST. MARGARET'S HOSPITAL. Applications invited for post of HOUSE SURGEON at above Hospital (654 Beds), either B appointment £260 p.a., plus war bonus, or A appointment £150 p.a., plus war bonus. There are 6 Resident Medical Officers at the Hospital.

Apply to the Superintendent.

ENFIELD, MIDDLESEX. CHASE FARM HOSPITAL. Required, CASUALTY OFFICER (B1), resident or non-resident post, recognised by the Royal College of Surgeons for the final Fellowship examination, vacant 2nd May, 1949. 12 months' appointment. Salary £350 p.a., plus any temporary bonus (now £60 p.a. cash if non-resident, £30 p.a. cash if resident), board, lodging, and laundry provided, if resident; otherwise, non-resident allowance of £100 p.a. payable. Hours: 9 A.M.–5.30 P.M. Monday to Friday; 9 A.M.–1 P.M. Saturday. Appointment subject to National Health Service (Superannuation) Regulations, 1947, and medical examination. R practitioners holding B1 posts not considered unless ineligible for H.M. Forces.

Applications, stating age, nationality, qualifications, and experience, with copies of up to 3 recent testimonials, to the Secretary, Enfield Group Hospital Management Committee, Chase Farm Hospital, Enfield, Middlesex, by 20th April, 1949.

ENFIELD, MIDDLESEX. CHASE FARM HOSPITAL. Required, RESIDENT SENIOR HOUSE PHYSICIAN (B2), vacant 5th May, 1949. Required for acute medical and pædiatric work. 6 months' appointment. Salary £250 p.a. plus any temporary bonus (now £30 p.a. cash), board, lodging, and laundry provided. R practitioners holding A posts may apply.

Applications, stating age, nationality, qualifications, and experience, with copies of up to 3 recent testimonials, to Medical Director of Hospital, by 20th April, 1949.

ENFIELD, MIDDLESEX. CHASE FARM HOSPITAL. Required, RESIDENT SENIOR OBSTETRIC HOUSE SURGEON (B2), vacant 1st May, 1949. Post recognised for D.Obst.R.C.O.G. Duties include gynæcological work. 6 months' appointment. Salary £250 p.a., plus any temporary bonus (now £30 p.a. cash), board, lodging, and laundry provided. R practitioners holding A posts may apply.

Applications, stating age, nationality, qualifications, and experience, with copies of up to 3 recent testimonials, to Medical Director of Hospital immediately.

EXETER. ROYAL DEVON AND EXETER HOSPITAL. (300 Beds—7 Resident Medical Staff employed.) EXETER AND MID-DEVON HOSPITALS MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (A), Male or Female, E.N.T. Department, and to act as Casualty Officer during mornings, post vacant immediately. Salary £180 p.a. (£200 p.a. with 6 months' experience), and full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications, with copies of 2 recent testimonials, immediately to the Senior Administrative Officer.

GLOUCESTER. GLOUCESTERSHIRE ROYAL HOSPITAL. GLOUCESTER, STROUD AND THE FOREST HOSPITAL MANAGEMENT COMMITTEE. Required, REGISTRAR ANÆSTHETIST (B1). Preference given to candidates with the D.A. Salary £650 p.a., non-resident. Successful candidate will also be called upon to work at other hospitals in the group.

Applications, giving full particulars of past experience, qualifications, age, and nationality, should be sent to the House Governor and Secretary, Royal Hospital, Southgate-street, Gloucester. C. J. ADAMS, Secretary,
Group Hospital Management Committee.

GLOUCESTER. GLOUCESTERSHIRE ROYAL HOSPITAL. SOUTH WESTERN REGIONAL HOSPITAL BOARD. Applications invited from registered medical practitioners for whole-time appointment of ASSISTANT CLINICAL PATHOLOGIST at above Hospital. Appointee must have some experience of the practice of clinical pathology and will work under the general direction of the Pathologist to the Hospital. Interim salary £700 p.a., with annual increments of £50 to maximum of £1000 p.a., and will be subject to any adjustment when the final decisions on salaries are known. Appointment subject to the Regulations made now and hereafter under the National Health Service Act, 1946.

Applications, stating age, qualifications, and experience, and the names of 2 referees, should be addressed to the Secretary of the Regional Hospital Board, 5/6, Cotham Lawn-road, Cotham, Bristol, 6, to reach him by 30th April, 1949. Canvassing in any form will be a disqualification.

GLASGOW WESTERN HOSPITALS BOARD OF MANAGEMENT. WESTERN INFIRMARY OF GLASGOW. Applications invited for posts of 2 Whole-time NON-RESIDENT JUNIOR RADIOLOGISTS in the Radiodiagnostic Department at above Institution. Candidates should be in possession of a higher diploma in radiodiagnosis. Salary for interim period at rate of £750 p.a. in each case, and appointments are subject to National Health Service (Scotland) (Superannuation) Regulations, 1948.

Applications, giving the names of 3 referees, should be sent by 30th April, 1949, to— NEIL M. ADAM,
10, Park-circus, Glasgow, C.3. Secretary and Treasurer.

GUILDFORD. ROYAL SURREY COUNTY HOSPITAL. (229 Beds.) GUILDFORD GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (A) for orthopædic and general surgery. Appointment, which is for 6 months as from 1st May, is recognised in connexion with the F.R.C.S. examination. Salary scale £275 p.a., rising to £375 6 months after qualification, and to £475 12 months after qualification.

Applications, with copies of 3 testimonials, should be sent to the Secretary-Superintendent as soon as possible.

HARROGATE AND DISTRICT GENERAL HOSPITAL. (253 Beds.) (Recognised by R.C.S. for Final F.R.C.S. Examination requirements.) Required, HOUSE SURGEON (A), post now vacant. Salary £200 p.a., with full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications as soon as possible to the Assistant Secretary.

HARTLEPOOLS HOSPITALS MANAGEMENT COMMITTEE. Applications invited for following posts:—

West Hartlepool. Cameron Hospital (92 Beds)

HOUSE SURGEON (B2). Salary £250 p.a., board, residence, and laundry.

HOUSE SURGEON (A). Salary £200 p.a., board, residence, and laundry.

Hartlepools Hospital. Hartlepool (126 Beds)

HOUSE SURGEON (A). Salary £200 p.a., board, residence, and laundry.

To R practitioners appointments for 6 months.

Applications to be forwarded to the Secretary of the Committee, General Hospital, West Hartlepool.

HALIFAX GENERAL HOSPITAL. (425 Beds—Resident Medical Staff 11.)

RESIDENT ANÆSTHETIST (B2), Male or Female, post vacant early May. Hospital recognised for training for the D.A.; time will be available for private study. Appointee would also be required for some duty at the Royal Halifax Infirmary.

HOUSE SURGEON (B2), Male or Female, to the Special Departments, post vacant early May.

Salary within the range £250–£350 p.a., according to experience, with full residential emoluments. Appointments for 6 months, renewable.

Applications, stating age, sex, nationality, qualifications, and experience, with copies of 3 recent testimonials, to be addressed to the Secretary, Halifax Area Hospitals Management Committee, Royal Halifax Infirmary, Halifax.

HALIFAX. ROYAL HALIFAX INFIRMARY. (298 Beds—Resident Medical Staff, 6.)

RESIDENT OBSTETRIC HOUSE SURGEON (B2), Male, post now vacant. Recognised for D.Obst.R.C.O.G. Duties include gynæcological work.

FIRST HOUSE SURGEON (B2), Male or Female, post vacant mid-April.

Salary within range of £250–£350 p.a., according to experience, with full residential emoluments. Appointments for 6 months (renewable).

Applications, stating age, sex, nationality, qualifications, and experience, with copies of 3 recent testimonials, to be addressed to the Secretary, Halifax Area Hospitals Management Committee, Royal Halifax Infirmary, Halifax.

HAVERFORDWEST. PEMBROKE COUNTY WAR MEMORIAL HOSPITAL. (130 Beds.) WEST WALES HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (B2), Male, post vacant 1st May, 1949. Salary £300 p.a., with full residential emoluments. R practitioners holding A posts may apply, when appointment will be limited to 6 months.

Applications in writing, stating age, qualifications with dates, and nationality, with copies of 3 testimonials, to be sent immediately, addressed to the Secretary-Superintendent, Pembroke County War Memorial Hospital, Haverfordwest.
A. W. YOUNGS, Secretary.

HEMEL HEMPSTEAD. WEST HERTS HOSPITAL. (170 Beds.) WEST HERTS GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, CASUALTY OFFICER AND HOUSE SURGEON (A) or (B2), post now vacant, and the appointment will be for 6 months at a salary of between £300 and £350 p.a., according to qualifications and experience, plus full residential emoluments. In the case of candidates within 6 months of qualifying the salary will be £200 p.a. 3 other Resident Medical Officers are employed.

Applications should be submitted immediately to—
A. D. SIDE, Administrator.

West Herts Hospital, Hemel Hempstead, Herts.

HEREFORD. GENERAL HOSPITAL. (154 Beds.) **Herefordshire** HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (B1) in charge of Casualty, E.N.T., and Fracture Depts. Previous surgical experience essential. Salary £250 p.a., full residential emoluments, subject to review by the Birmingham Regional Board.

Applications, stating age, qualifications, and experience, with copies of 3 recent testimonials, should be sent to—
T. W. UPTON, Secretary.

HIGH WYCOMBE AND DISTRICT WAR MEMORIAL HOSPITAL. (101 Beds.) SENIOR HOUSE SURGEON (B1), with charge of administration of medical and surgical beds. (There are 2 other Junior Residents.) Applicants should have held house appointments and have surgical and anæsthetic experience. Appointment for 12 months. Salary £350 p.a., plus residential emoluments. Post vacant from 21st April, 1949, or earlier if possible. R practitioners eligible for H.M. Forces holding B1 or A post, not considered.

Applications, with testimonials, to be forwarded to—
E. BARBER, Secretary.

HOUNSLOW HOSPITAL, Hounslow, Middlesex. Staines GROUP HOSPITAL MANAGEMENT COMMITTEE. HOUSE PHYSICIAN AND CASUALTY OFFICER (A), Male, resident, required, post vacant 10th May, 1949. 6 months' appointment. Salary £200 p.a., plus board, lodging, and laundry. R practitioners within 3 months of qualification and liable for service with H.M. Forces are eligible.

Applications, stating age, qualifications, and experience, with copies of up to 3 recent testimonials, to the Assistant Secretary of the Hospital. Closing date 27th April, 1949.

HUDDERSFIELD ROYAL INFIRMARY. (321 Beds.) **Huddersfield** HOSPITAL MANAGEMENT COMMITTEE.

HOUSE SURGEON (A) required to commence duties as soon as possible. Salary £250 p.a., with full residential emoluments.

HOUSE SURGEON (A) required to commence duties 26th April, 1949. Duties will include those of House Surgeon to the Abnormal Maternity Department. Salary £275 p.a., with full residential emoluments.

R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications, with copies of 3 recent testimonials, should be sent immediately to—
H. J. JOHNSON, Secretary, Huddersfield Royal Infirmary.

HUDDERSFIELD ROYAL INFIRMARY. (321 Beds.) **Huddersfield** HOSPITAL MANAGEMENT COMMITTEE. CASUALTY OFFICER (B2) required to commence duties immediately. Salary £300 p.a., with full residential emoluments. R practitioners holding A post may apply, when appointment limited to 6 months.

Applications to be addressed to undersigned immediately, with copies of 3 recent testimonials.
H. J. JOHNSON, Secretary, Huddersfield Royal Infirmary.

HUDDERSFIELD. ST. LUKE'S HOSPITAL UNIT. Huddersfield HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT MEDICAL OFFICER (B1). Salary £497 10s.–£25–£597 10s. plus usual residential emoluments. R practitioners eligible for H.M. Forces holding B1 post, not considered. Post is superannuable.

Applications, with copies of 3 recent testimonials, to be addressed as soon as possible to—
H. J. JOHNSON, Secretary, Huddersfield Royal Infirmary.

HULL ROYAL INFIRMARY. Required, House Surgeon (B2) at the Sutton Branch Hospital, vacant June. Salary £300 p.a., with full residential emoluments. Appointment for 6 months in the first instance, but will be terminable by 1 month's notice on either side. Suitably qualified R practitioners holding A posts may apply.

Applications to R. J. CARLESS, Secretary, Hull A Group Hospital Management Committee.

HULL ROYAL INFIRMARY. House Surgeon (B2), Male, required. Recognised for F.R.C.S. Salary £300 p.a., with full residential emoluments. Appointment for 6 months in the first instance, but terminable at any time by 1 month's notice on either side.

Applications to R. J. CARLESS, Secretary, Hull A Group Hospital Management Committee.

HULL. VICTORIA HOSPITAL FOR SICK CHILDREN, Park-street, HULL. HULL A GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT HOUSE PHYSICIAN (A), Female, post now vacant. Salary £250 p.a., with board, residence, and laundry. This post will count towards qualification for the D.C.H.

Applications, stating when free, with testimonials, should be forwarded to the Administrative Officer at above address as soon as possible. R. J. CARLESS, Secretary.

HULL. KINGSTON GENERAL HOSPITAL. (400 Beds.) Required, ANÆSTHETIST (B1), Male or Female, post tenable for 3 years. Salary £472 10s., rising to £572 10s., plus cost-of-living bonus £60, with full residential emoluments. Post suitable for practitioners who have recently acquired or are reading for the D.A. Suitably qualified practitioners holding B2 appointment eligible to apply, but applications from R practitioners holding B1 post cannot be considered unless ineligible for H.M. Forces.

Application forms may be obtained from, and should be returned as soon as possible, to R. J. CARLESS, Secretary, Hull A Group Hospital Management Committee, Hull Royal Infirmary.

IPSWICH BOROUGH GENERAL HOSPITAL. Required, House SURGEON (B2) to the Orthopædic and Casualty Department, post now vacant. Salary £350 p.a., with full residential emoluments. Appointment for 6 months in the first instance. R practitioners holding A post may apply.

Applications, with full particulars, to be sent to JOHN WILLIAMS, Secretary, Ipswich Group Hospital Management Committee, East Suffolk and Ipswich Hospital.

IPSWICH BOROUGH GENERAL HOSPITAL. Required, Senior RESIDENT ANÆSTHETIST (B1), post now vacant. Salary £400 p.a. R practitioners eligible for H.M. Forces holding B1 post, not considered.

Applications, with full particulars, to be sent to JOHN WILLIAMS, Secretary, Ipswich Group Hospital Management Committee, East Suffolk and Ipswich Hospital.

IPSWICH. EAST SUFFOLK AND IPSWICH HOSPITAL AND IPSWICH BOROUGH GENERAL HOSPITAL. Required, REGISTRAR (B1), whole time, non-resident, to the Radiological (Diagnostic) Departments. Candidates who are now completing the D.M.R. course are eligible to apply. Salary (including living-out allowance) £650 p.a., subject to amendment on the adoption of the Spens report. Appointment, which is subject to National Health Service (Superannuation) Regulations, 1947, is for 1 year renewable. Applications from R practitioners holding B1 or A posts cannot be considered unless ineligible for H.M. Forces.

Applications with full particulars as soon as possible to JOHN WILLIAMS, Secretary, Ipswich Group Hospital Management Committee at East Suffolk and Ipswich Hospital.

IPSWICH. EAST SUFFOLK AND IPSWICH HOSPITAL. Required, CASUALTY OFFICER AND ASSISTANT HOUSE PHYSICIAN (B2), post now vacant. Salary £350 p.a., with full residential emoluments. Appointment for 6 months in the first instance. R practitioners holding A post may apply.

Applications, with full particulars, to be sent to JOHN WILLIAMS, Secretary, Ipswich Group Hospital Management Committee, East Suffolk and Ipswich Hospital.

IPSWICH. EAST SUFFOLK AND IPSWICH HOSPITAL. Required, HOUSE SURGEON (B2) to the Orthopædic and Fracture Department, post now vacant. Salary £350 p.a., with full residential emoluments. Appointment for 6 months in the first instance. R practitioners holding A post may apply.

Applications, with full particulars, to be sent to JOHN WILLIAMS, Secretary, Ipswich Group Hospital Management Committee, East Suffolk and Ipswich Hospital.

IPSWICH. EAST SUFFOLK AND IPSWICH HOSPITAL. Required, JUNIOR PATHOLOGIST (B1), whole time, non-resident, with 12–18 months' laboratory experience especially in bacteriology. Salary (including living-out allowance) £650 p.a., subject to amendment on the adoption of the Spens report. Appointment, which is subject to National Health Service (Superannuation) Regulations, 1947, is for 1 year renewable. Applications from R practitioners holding B1 or A posts cannot be considered unless ineligible for H.M. Forces.

Applications with full particulars as soon as possible to JOHN WILLIAMS, Secretary, Ipswich Group Hospital Management Committee, at East Suffolk and Ipswich Hospital.

KETTERING AND DISTRICT GENERAL HOSPITAL. Required, CASUALTY HOUSE SURGEON (A). Salary £200 p.a., plus full emoluments. Appointment in the first instance for 6 months. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications, stating age, qualifications, &c., with copies of 1–3 testimonials, should be sent as soon as possible to—

G. H. FENNELL, Assistant Secretary.

LANCASTER. THE ROYAL ALBERT HOSPITAL. (For the feeble-minded of the Northern Counties of England.) Required, SENIOR ASSISTANT MEDICAL OFFICER (B1). Applicants must have had previous psychiatric experience and preference given to holders of the D.P.M. Existing salary £575 p.a., by increments of £50 p.a. to £775 p.a., plus an additional £50 p.a. on the scale for the D.P.M., with emoluments valued at £200 for superannuation purposes, this being subject to retrospective adjustment in accordance with the nationally agreed salary scale. There is a modernised cottage available on the estate for a married man. The emoluments will be adjustable by arrangement in the case of married applicants. Appointment subject to National Health Service (Superannuation) Regulations, 1947.

Applications should be forwarded to the Medical Superintendent by 27th April, 1949.

LEAMINGTON SPA. WARNEFORD GENERAL HOSPITAL. (207 Beds.) Required, HOUSE SURGEON (B2) to the E.N.T and Ophthalmic Departments at this Hospital, post vacant about the middle of April, 1949. Salary £180 p.a., with full residential emoluments.

Applications, stating age, qualifications with dates, and details of experience, with copies of 3 recent testimonials, should be sent as soon as possible to Miss V. WELLS, Assistant Secretary.

LEEDS A GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications invited from registered medical practitioners (Male and Female) for following appointments vacant 1st May, 1949.

St. James's Hospital

7 HOUSE PHYSICIANS (A).
1 HOUSE PHYSICIAN (A), pædiatrics.
3 HOUSE SURGEONS (A).
* 1 HOUSE SURGEON (B2).
† 1 OBSTETRICAL HOUSE SURGEON (B2).
‡ 1 GYNÆCOLOGICAL HOUSE SURGEON (B2).
1 ASSISTANT ANÆSTHETIC OFFICER (B2).
1 ORTHOPÆDIC HOUSE SURGEON (B2).

St. Mary's Hospital

† 1 SENIOR OBSTETRICAL HOUSE SURGEON (B2).
1 JUNIOR OBSTETRICAL HOUSE SURGEON (A).

Public Dispensary and Hospital

1 HOUSE PHYSICIAN (A).

* Recognised by the Royal College of Surgeons for Fellowship.
† Recognised by the Royal College of Obstetricians and Gynæcologists for Diploma.
‡ Recognised by the Royal College of Obstetricians and Gynæcologists for Membership.

A appointments 6 monthly. Salary £180 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable for service under the National Service Acts may apply.

B2 appointments 6 monthly. Salary £230 p.a., with full residential emoluments.

The above salaries and conditions of service are subject to review under the recommendations of the Spens Committee.

Applications, stating age, qualifications, and experience, with copies of 3 recent testimonials, should be forwarded to the Administrative Medical Officer, St. James's Hospital, Leeds, 9, as soon as possible.

J. FOLKARD, Secretary to the Committee.

LEEDS A GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications invited from registered medical practitioners (Male or Female) for following resident appointments vacant 1st May 1949 :—

St. James's Hospital

ANÆSTHETIC OFFICER (B1).

St. Mary's Hospital

DEPUTY OBSTETRIC OFFICER (B1). Recognised by the Royal College of Obstetricians and Gynæcologists for Membership.

Public Dispensary and Hospital

HOUSE SURGEON (B2) to the E.N.T. and Eye Department.

B1 appointments: Salary £502 10s.–£602 10s. p.a., with full residential emoluments, and will be for 1 year in the first instance. R practitioners eligible for H.M. Forces holding B1 or A post, not considered. Suitably qualified practitioners holding B2 appointments invited to apply.

B2 appointment 6 monthly. Salary £350 p.a., with full residential emoluments.

The above salaries and conditions of service are subject to review under the recommendations of the Spens Committee.

Applications, stating age, qualifications, and experience, with copies of 3 recent testimonials, should be forwarded to the Administrative Medical Officer, St. James's Hospital, Leeds, 9, as soon as possible.

J. FOLKARD, Secretary to the Committee.

LIPHOOK, HANTS. KING GEORGE'S SANATORIUM FOR SAILORS. (80 Beds.) RESIDENT ASSISTANT MEDICAL OFFICER (B1) required. Salary at a point on scale £350–£50–£450, according to qualifications and experience. Appointment for 6 months in the first instance, renewable at 6-monthly intervals.

Applications, giving full details with copies of 3 testimonials, to be sent to the Physician-Superintendent, as soon as possible.

LIVERPOOL. ROYAL LIVERPOOL CHILDREN'S HOSPITAL. Applications invited from registered medical practitioners, Male and Female, for following posts at above Hospital, vacant for the period to 30th September, 1949 :—

HOUSE SURGEON (A), general surgery. £120–£180 p.a., according to experience.
HOUSE SURGEON (A), E.N.T. and orthopædics. £120–£180 p.a., according to experience.
JUNIOR CASUALTY OFFICER (A). £200 p.a.

Salaries include board and residence and are subject to such retrospective adjustment as may be appropriate when new salary scales are determined in accordance with regulations to be made by the Minister of Health. Appointments provide opportunity for study for the D.C.H. and are subject to the National Health Service (Superannuation) Regulations, 1947.

Applications, with full details, should be sent as soon as possible to— A. V. J. HINDS, Secretary.
The United Liverpool Hospitals.

80, Rodney-street, Liverpool, 1.

LIVERPOOL RADIUM INSTITUTE. Applications invited for appointment of RESIDENT MEDICAL OFFICER (B2), Male. Salary £350 p.a., with full residential emoluments. The position is suitable for practitioners desiring experience of radiotherapy. R practitioners holding A posts considered, when appointment will be for 6 months.

Applications should be addressed to—
H. R. MASON, Secretary,
Liverpool Radium Institute Management Committee.
Liverpool Radium Institute, 1, Myrtle-street, Liverpool.

LIVERPOOL RADIUM INSTITUTE. Applications invited for a post of RADIOTHERAPEUTIC REGISTRAR at above Institute. The Institute is the radiotherapeutic centre for the Liverpool Regional Hospital Area and the post provides excellent experience in all branches of radiotherapy. Salary £650.

Applications from candidates who must have completed at least 1 year of postgraduate study for a radiological diploma, should give details of age and previous experience, and should be accompanied by recent testimonials or references. Further particulars regarding this post may be obtained from the Medical Director of the Institute, to whom applications should be addressed.

LIVERPOOL. BROADGREEN HOSPITAL, Edge Lane-drive, LIVERPOOL, 14. RESIDENT ANÆSTHETIST (B1) is required at above Hospital, which is approved for the purposes of the D.A. examination. The post offers wide experience of anæsthetic work. The Hospital includes a Thoracic Surgical Centre. There are several Visiting Anæsthetists. Applicants should have had previous anæsthetic experience and should hold the D.A. or show evidence of intending to specialise in anæsthetic work. Salary £450 p.a., with residential emoluments.

Applications, on forms to be obtained from the undersigned, to be returned by 30th April, 1949.

H. BLYTHE, Secretary, Liverpool and District Eastern Hospital Management Committee.

Broadgreen Hospital, Edge Lane-drive, Liverpool, 14, March, 1949.

LIVERPOOL AND DISTRICT HOSPITAL FOR DISEASES OF THE HEART, 34, Oxford-street, LIVERPOOL, 7. SOUTH LIVERPOOL HOSPITAL MANAGEMENT COMMITTEE. HOUSE PHYSICIAN (A), Male or Female, commence immediately. Appointment for 6 months. Salary £230 p.a., full residential emoluments. Facilities for M.D. thesis. Practitioners within 3 months of qualification who are liable for service under the National Service Acts are invited to apply.

Apply to Secretary.

LIVERPOOL. BOOTLE GENERAL HOSPITAL. Required, CASUALTY OFFICER (B2). Appointment for 6 months. Salary £200 p.a., with full residential emoluments. R practitioners within 3 months of qualification and those holding A posts, may apply.

Applications should be sent as soon as possible to F. J. WATKINS, Secretary, North Liverpool Hospital Management Committee, Walton Hospital, Liverpool, 9.

LIVERPOOL UNITED HOSPITALS. Applications invited from registered medical practitioners, Male and Female, for following posts vacant for the period to 30th September, 1949 :—

Liverpool Royal Infirmary

HOUSE SURGEON (A) to Aural and Eye Department. £100–£120 p.a.

HOUSE SURGEON (A) to Orthopædic Department. £100–£120 p.a.

HOUSE SURGEON (B2) to Skin Department and Junior Casualty Officer. £110–£130 p.a.

SENIOR CASUALTY OFFICER (B2). £110–£130 p.a.

David Lewis Northern Hospital

CASUALTY OFFICER (B2). £110–£130 p.a.

Royal Southern Hospital

HOUSE SURGEON (A) to Orthopædic Department. £100–£120 p.a.

CASUALTY OFFICER (B2), Fazakerley (with duties of Specials Officer). £110–£130 p.a.

Liverpool Stanley Hospital

HOUSE SURGEON (A). £100–£120 p.a.

CASUALTY OFFICER (B2). £110–£130 p.a.

Salaries in all cases include board and residence, and are subject to such retrospective adjustment as may be appropriate when new salary scales are determined in accordance with regulations to be made by the Minister of Health. Appointments subject to National Health Service (Superannuation) Regulations, 1947.

Applications, with full details, should be sent as soon as possible to— A. V. J. HINDS, Secretary, The United Liverpool Hospitals.

80, Rodney-street, Liverpool, 1.

MAIDENHEAD HOSPITAL, St. Lukes-road, Maidenhead. (100 Beds.) WINDSOR GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (B2), post vacant now. Salary £250 p.a., with full residential emoluments. To R practitioners appointment for 6 months ; otherwise for 1 year.

Applications, stating age, experience, nationality, and qualifications, with copies of 3 testimonials or names of 3 referees, should be sent to the Administrative Officer at the above address.

MAIDSTONE. WEST KENT GENERAL HOSPITAL. (135 Beds.) MID-KENT HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT CASUALTY OFFICER (A). 6 months' appointment. Salary £200 a year, with full residential emoluments.

Applications, stating age, nationality, qualifications, experience, with the names and addresses of 2 responsible persons as reference to professional ability and character, should be forwarded as soon as possible to the Secretary at the Hospital.

MANCHESTER. ANCOATS HOSPITAL, Mill-street, Man-CHESTER, 4. NORTH MANCHESTER HOSPITAL MANAGEMENT COMMITTEE. Required, ORTHOPÆDIC HOUSE SURGEON (A). Salary £225 p.a., with full residential emoluments.

Applications, stating age, qualifications, and experience, with copies of 2 testimonials, should be sent immediately to— JOHN H. DAFFORNE, General Superintendent.

MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL, CHEETHAM, MANCHESTER, 8. (Non-Sectarian—102 Beds.) NORTH MANCHESTER HOSPITAL MANAGEMENT COMMITTEE. Required, CASUALTY OFFICER AND HOUSE SURGEON (B2), post now vacant. Appointment for 6 months. Salary £250 p.a., with full residential emoluments.

Applications, with copies of 1–3 recent testimonials, to be submitted forthwith to the Hospital Administrator.

MANCHESTER. VICTORIA MEMORIAL JEWISH HOSPITAL, CHEETHAM, MANCHESTER, 8. NORTH MANCHESTER HOSPITAL MANAGEMENT COMMITTEE. JUNIOR HOUSE SURGEON (A) required for Special Departments, position now vacant. Salary £225 p.a., full residential emoluments. R practitioners within 3 months of qualification may apply, when appointment will be limited to 6 months.

Applications, with copies of 1–3 recent testimonials, to be submitted forthwith to the Hospital Administrator.

MANCHESTER. BOOTH HALL CHILDREN'S HOSPITAL. (600 Beds.) MANCHESTER BABIES' AND CHILDREN'S HOSPITAL MANAGEMENT COMMITTEE. Applications, Male or Female, are invited for posts of HOUSE SURGEONS (A). Basic salary £230 p.a., with usual residential emoluments valued at £150 p.a. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. Appointment for 12 months except for practitioners liable for service with H.M. Forces to whom it will be 6 months. Successful candidates to take up duties at an early date.

Applications, with full particulars, to be addressed to the Secretary of the Committee, at Booth Hall Hospital, Charlestown-road, Manchester, 9, as soon as possible.

MANCHESTER. BOOTH HALL CHILDREN'S HOSPITAL. (600 Beds.) MANCHESTER BABIES' AND CHILDREN'S HOSPITAL MANAGEMENT COMMITTEE. Applications invited from registered medical practitioners for posts of 2 HOUSE PHYSICIANS (A), one vacancy will fall due 12th May and the other 20th May, 1949. Basic salary £230 p.a., with the usual residential emoluments valued at £150 p.a. R practitioners, ineligible for H.M. Forces or under 25½ years, not having held an A post, considered. Appointment for 12 months, except for practitioners liable for service with H.M. Forces to whom it will be 6 months.

Applications, with full particulars, to be addressed to the Secretary of the Committee, at Booth Hall Hospital, Charlestown-road, Manchester, 9, to reach him by 23rd April, 1949.

NEWCASTLE GENERAL HOSPITAL. Obstetric and Gynæco-LOGICAL DEPARTMENT. (104 Beds.) NEWCASTLE UPON TYNE HOSPITAL MANAGEMENT COMMITTEE. Required, REGISTRAR (B1), Male or Female, whole time, to the Obstetrical and Gynæcological Department, post vacant in May, 1949. The Hospital is recognised for training for the M.R.C.O.G., but the possession of a higher qualification would be an advantage. Salary in scale £550–£700, according to experience, plus £150 in lieu of residential emoluments, with a bonus of £60 p.a., subject to revision according to the Spens report. An unfurnished flat will be provided within the Hospital grounds, for which an annual rental of £65 is deducted. Appointment for 1 year in the first instance, renewable yearly for not more than 2 subsequent years. Applicants must be ineligible for H.M. Forces.

Applications, with 1 copy of 2 testimonials, giving details of experience, qualifications, &c., to the Medical Superintendent, Newcastle General Hospital, 418, Westgate-road, Newcastle upon Tyne, 4, by 30th April, 1949.

NEWPORT, MON. ST. WOOLOS HOSPITAL. Newport and EAST MONMOUTHSHIRE HOSPITALS MANAGEMENT COMMITTEE. Applications invited for post of HOUSE PHYSICIAN (A), at above Hospital, now vacant. Salary £200 p.a., with full residential emoluments.

Applications, stating age, qualifications, and copies of 3 recent testimonials, to be sent to T. A. JONES, Secretary, 16, Cardiff-road, Newport, Mon.

NEWPORT, MON. ST. WOOLOS HOSPITAL. Newport and EAST MONMOUTHSHIRE HOSPITALS MANAGEMENT COMMITTEE. Applications invited for following vacancies at above Hospital :—

HOUSE SURGEON (A), now vacant.

HOUSE SURGEON (A), vacant 1st May, 1949.

Salary £200 p.a., and full residential emoluments.

Applications, stating age, qualifications, and copies of 3 recent testimonials, to be sent to T. A. JONES, Secretary, 16, Cardiff-road, Newport, Mon.

NORTHAMPTON GENERAL HOSPITAL. (464 Beds.) Required, REGISTRAR (B1) to the E.N.T. Department. Applicants should have held house appointments and have had experience in E.N.T. work. Preference given to candidates holding a higher qualification. Interim salary, pending adoption of Spens report, £500 a year, with full residential emoluments (or a living-out allowance). Suitably qualified R practitioners holding B2 appointments, also those holding B1 and ineligible for H.M. Forces, may apply.

Applications, addressed to undersigned, stating age, qualifications with dates, &c., and accompanied by copies of 3 recent testimonials, should be received on or before 4th May, 1949.

S. G. HILL, Superintendent.

NOTTINGHAM GENERAL HOSPITAL. (547 Beds, including "The Cedars" Branch Hospital.) NOTTINGHAM AREA NO. 1 HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (A). Duties to commence as soon as possible. Salary £300 p.a., with full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications, stating age, qualifications, and experience, with copies of testimonials, to be sent to— HENRY M. STANLEY, Secretary.

NOTTINGHAM GENERAL HOSPITAL. Ear, Nose, and Throat Department. NOTTINGHAM AREA NO. 1 HOSPITAL MANAGEMENT COMMITTEE. Required, SECOND AURAL HOUSE SURGEON (A), Male or Female. Appointment for 6 months. Salary £300 p.a., full residential emoluments. Duties to commence as soon as possible. The Ear, Nose, and Throat Department has 53 Beds and a large Outpatient Department and is recognised for the D.L.O.

Applications to be addressed to undersigned, stating age, qualifications, and experience, &c., together with copies of testimonials. HENRY M. STANLEY, Secretary.

NOTTINGHAM. MAPPERLEY (MENTAL) HOSPITAL. Required, HOUSE PHYSICIAN (A). Candidates need not have had previous experience in psychiatry but should preferably have held a post as House Surgeon or House Physician in a general hospital. The post affords wide experience in the early treatment of adult nervous and mental disorders, and in outpatient psychiatric work. Salary £532 p.a., with full residential emoluments. Appointment in the first instance for 6 months.

Applications, with names of referees, should be sent to the Medical Superintendent, Mapperley Hospital, Nottingham.

NOTTINGHAM GENERAL HOSPITAL. Nottingham Area NO. 1 HOSPITAL MANAGEMENT COMMITTEE. Required, JUNIOR RADIOLOGICAL REGISTRAR to the Diagnostic Department of above Hospital. Post is non-resident. Applicants holding only Part I, D.M.R. would be considered. Salary £600 p.a., plus £150 living-out allowance.

Applications, stating age, qualifications, and experience, with copies of testimonials, to be sent to—

HENRY M. STANLEY, Secretary.

OLDHAM. BOUNDARY PARK GENERAL HOSPITAL. Oldham AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT SURGICAL OFFICER (B1), Male or Female. Post approved for the final F.R.C.S. Applicants should have held house appointments and have had surgical experience. Preference given to candidates holding the Primary Fellowship. Salary scale £500–£25–£600, with board, residence, and laundry. Appointment tenable for 1 year in the first instance. Suitably qualified R practitioners holding B2 appointments, also those holding B1 and ineligible for H.M. Forces may apply.

Applications, with copies of 3 recent testimonials, should be sent immediately to F. W. BARNETT, Secretary.

Central Offices, Rochdale-road, Oldham.

ORMSKIRK. COUNTY HOSPITAL, Wigan-road, Ormskirk. ORMSKIRK AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. Applications invited for following appointments:—

JUNIOR HOUSE SURGEON (A).

JUNIOR HOUSE PHYSICIAN (A).

Appointments for 6 months. Salary £230 p.a., plus full residential emoluments.

Applications, stating age, qualifications, and experience, with copies of 1–3 recent testimonials, should reach undersigned by 19th April, 1949.

County Hospital, Ormskirk. H. E. BECK, Secretary.

OSWESTRY. THE ROBERT JONES AND AGNES HUNT ORTHOPÆDIC HOSPITAL. (479 Beds.) Required, at once, HOUSE SURGEON (B2). Salary £350 p.a., resident. Appointment in the first place for 6 months, with possibility of an extension.

Applications, stating age, nationality, qualifications, &c., should be forwarded to the Acting Secretary before 30th April, 1949.

OXFORD REGIONAL HOSPITAL BOARD invite applications for whole-time post of Male DEPUTY REGIONAL BLOOD TRANSFUSION OFFICER, Oxford Region. Salary £1000–£1300, according to age and experience. Candidates must have considerable experience in transfusion schemes and be fully conversant with the organisation of a Transfusion Service Laboratory.

Applications, with 5 spare copies, stating age, qualifications, experience, and giving the names of 3 referees, should be sent to the Secretary, Oxford Regional Hospital Board, 43, Banbury-road, Oxford, by 2nd May.

PENDLEBURY. ROYAL MANCHESTER CHILDREN'S HOSPITAL. SALFORD HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT SURGICAL OFFICER (B1). Preference given to candidates holding the qualification of F.R.C.S. Salary, if qualified F.R.C.S., £450 p.a.; otherwise £300 p.a. Appointment for 6 months in the first instance, commencing 30th April, 1949. Suitably qualified R practitioners holding B2 posts, also those holding B1 and ineligible for H.M. Forces, may apply.

Applications, stating age, with copies of 1–3 recent testimonials, to be sent to H. HEARDMAN, Royal Manchester Children's Hospital, Pendlebury, as soon as possible.

PETERBOROUGH DISTRICT HOUSE COMMITTEE. No. 12 GROUP (EAST ANGLIAN) AREA MANAGEMENT COMMITTEE. There is a vacancy for RESIDENT HOUSE PHYSICIAN (A) for which R practitioners within 3 months of qualification may apply. Appointment for 6 months. Salary £300 p.a., with full board, residence, and laundry.

Apply to F. A. C. TAYLOR, House Governor and Secretary, Midland-road, Peterborough.

PETERBOROUGH DISTRICT HOUSE COMMITTEE. No. 12 GROUP (EAST ANGLIAN) AREA MANAGEMENT COMMITTEE. There are vacancies for 2 RESIDENT HOUSE SURGEONS (A) for which R practitioners within 3 months of qualification may apply. Appointments for 6 months. Salary £300 p.a., with full board, residence, and laundry.

Apply to F. A. C. TAYLOR, House Governor and Secretary, Midland-road, Peterborough.

PONTYPOOL AND DISTRICT HOSPITAL. House Surgeon (B2) required at above Hospital as a result of increase in the resident medical staff. Salary £300 p.a., with full residential emoluments.

Applications, stating age, particulars of qualifications, and copies of recent references to be sent to the Secretary, Newport and East Monmouthshire Hospitals Management Committee, 16, Cardiff-road, Newport, Mon.

PORTSMOUTH. ST. MARY'S HOSPITAL. (1135 Beds.) PORTSMOUTH GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT MEDICAL OFFICER (A). Salary £250 p.a., with residential emoluments valued at £150 p.a. Appointment is for a Junior General Assistant and if held by a practitioner who is liable under the National Service Acts will be for 6 months; otherwise 12 months.

Applications in writing, giving full particulars of qualifications and experience, stating date when available, should be sent to—

G. A. HUGHES, Secretary to Committee.

Group Headquarters, 18, Landport-terrace, Portsmouth.

PLYMOUTH. SOUTH DEVON AND EAST CORNWALL HOSPITAL, Greenbank-road, PLYMOUTH. THE PLYMOUTH, SOUTH DEVON, AND EAST CORNWALL GENERAL HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (A), post vacant forthwith. Salary £250 p.a., with full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications, with copies of 1–3 recent testimonials, should be sent immediately to ARTHUR R. CASH, Secretary.

22nd February, 1949.

PLYMOUTH. SOUTH DEVON AND EAST CORNWALL HOSPITAL, Greenbank-road, PLYMOUTH. THE PLYMOUTH, SOUTH DEVON, AND EAST CORNWALL GENERAL HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (B2) to Casualty and Fracture Departments, post now vacant. Salary £300 p.a., with full residential emoluments. R practitioners holding A posts and who have not completed a 5 months' tenure of those posts may apply, when appointment will be limited to 6 months.

Applications, stating age, qualifications, and experience, with copy testimonials, should be sent to—

ARTHUR R. CASH, Secretary.

PLYMOUTH. SOUTH DEVON AND EAST CORNWALL HOSPITAL, Greenbank-road, PLYMOUTH. Required, HOUSE SURGEON (A) to the E.N.T. Dept., post vacant forthwith. Salary £250 p.a., full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications to ARTHUR R. CASH, Secretary.
Plymouth, South Devon, and East Cornwall General Hospital Management Committee.

PLYMOUTH. SOUTH DEVON AND EAST CORNWALL HOSPITAL, Greenbank-road, PLYMOUTH. THE PLYMOUTH, SOUTH DEVON, AND EAST CORNWALL GENERAL HOSPITAL MANAGEMENT COMMITTEE. Required. RESIDENT ANÆSTHETIST (A), Male or Female, post now vacant. Salary £250 p.a., with full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months. The Hospital is recognised for the D.A.

Applications, stating age, qualifications, and experience, with copy testimonials, should be sent to—

ARTHUR R. CASH, Secretary.

PLYMOUTH. THE SOUTH DEVON AND EAST CORNWALL HOSPITAL, Greenbank-road, PLYMOUTH. THE PLYMOUTH, SOUTH DEVON, AND EAST CORNWALL GENERAL HOSPITAL MANAGEMENT COMMITTEE. Applications invited for post of SURGICAL REGISTRAR. Salary £650 p.a. if non-resident, £550 p.a. if resident, and subject to review on the implementation of the Spens report. Appointment for 1 year in the first instance. Applicants must have had surgical experience and should hold a higher surgical qualification. Applications from practitioners holding B1 appointment not considered if eligible for H.M. Forces.

Applications, stating age, qualifications, and experience, with the names and addresses of 3 referees, should be sent immediately to ARTHUR R. CASH, Secretary.

PLYMOUTH. SOUTH DEVON AND EAST CORNWALL HOSPITAL, Freedom Fields, PLYMOUTH (formerly the City General Hospital, Plymouth). (420 Beds.) THE PLYMOUTH, SOUTH DEVON, AND EAST CORNWALL GENERAL HOSPITAL MANAGEMENT COMMITTEE. Required, CASUALTY AND RECEIVING ROOM OFFICER (A), Male or Female. Salary £250 p.a., with full residential emoluments. Appointment, which affords excellent experience of a general character, in both medicine and surgery, will be for 6 months and terminable by 1 month's notice on either side. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications, with copies of 1–3 recent testimonials, should be sent immediately to ARTHUR R. CASH, Secretary.

South Devon and East Cornwall Hospital, Greenbank-road, Plymouth, 18th February, 1949.

PONTEFRACT GENERAL INFIRMARY AND THE HYDES HOSPITAL. (102 Beds.) PONTEFRACT AND CASTLEFORD HOSPITAL MANAGEMENT COMMITTEE. Applications invited from registered medical practitioners (Male) for appointments of HOUSE SURGEON (A) and HOUSE PHYSICIAN (A), both vacant immediately. Salary in both cases £200 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when appointment will be for 6 months.

Applications should be sent to D. J. RICHARDS, Secretary.
Pontefract General Infirmary, Southgate, Pontefract.

PRESTON ROYAL INFIRMARY. Preston and Chorley Hospital MANAGEMENT COMMITTEE. Applications invited from registered medical practitioners, with postgraduate experience, for post of RESIDENT OBSTETRICAL OFFICER (B1), vacant 1st June. The Maternity Hospital, which is a recognised Part I Midwives Training School, has 50 Beds and antenatal and postnatal clinics. This post is recognised for the M.R.C.O.G. Salary £350, with the usual residential emoluments (subject to any subsequent adjustment).

Applications, stating age, qualifications, and dates, and present and previous posts, with copies of testimonials, should be forwarded to the Superintendent, Royal Infirmary, Preston.

JOHN GIBSON, Secretary.

RICHMOND, SURREY. ROYAL HOSPITAL. South-West Metropolitan Region. Required, HOUSE SURGEON (A), post vacant immediately. Salary £250 p.a., with full residential emoluments. Practitioners within 3 months of qualification may apply, when the appointment will be limited to 6 months.

Applications, stating date and year of birth, qualifications with dates, and nationality, should be sent as soon as possible to the Secretary, Kingston Group Hospital Management Committee, at the Royal Hospital, Richmond, Surrey.

PORT TALBOT AND DISTRICT GENERAL HOSPITAL, Port TALBOT, GLAM. MID GLAMORGAN HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT MEDICAL OFFICER (B1). This is a well-equipped general hospital with accommodation for 85 beds for males, females, and children, medical and surgical cases, and has a panel of distinguished consultants which visits daily. Salary £472 10s.–£25–£572 10s., plus £30 (half cost-of-living bonus), with full residential emoluments valued at £105, and this salary is subject to retrospective review under the terms of the Spens report. Appointment subject to the National Health Service (Superannuation) Regulations, 1947.

Applications, stating age, qualifications, and giving the names of 2 referees, should be submitted to the Secretary, 8, Windstreet, Neath.

REDRUTH. CAMBORNE-REDRUTH MINERS' AND GENERAL HOSPITAL, REDRUTH, CORNWALL. WEST CORNWALL HOSPITAL MANAGEMENT COMMITTEE. Required, JUNIOR HOUSE SURGEON (A), Male or Female, to the Obstetric and Gynæcological Departments at a salary of £200 p.a., commencing 1st June, 1949. Appointment for 3 months in the first instance and successful applicant will be expected to proceed to Senior House Surgeon (B2) for a further 3 months at a salary of £250 p.a. The Obstetric Department has 60 Beds for abnormal midwifery. The Hospital has been recognised for the Membership of the Royal College of Obstetricians and Gynæcologists. Practitioners within 3 months of qualification and liable under the National Service Acts may apply.

Applications, with copies of 3 testimonials, should be sent to—
NORMAN O. DEANS, Secretary-Superintendent.

READING. ROYAL BERKSHIRE HOSPITAL. (383 Beds.) Required, HOUSE PHYSICIAN (A), Male, post vacant 1st May, 1949. Salary £200 p.a., plus full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioners liable for service with H.M. Forces appointment for 6 months.

Applications, stating age, qualifications with dates, nationality, present post, with copies of 3 recent testimonials, should be sent immediately to the Administrative Officer, Royal Berkshire Hospital, Reading.

READING. ROYAL BERKSHIRE HOSPITAL. (383 Beds.) READING AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT MEDICAL OFFICER (B1), Male, for Children's Department, post vacant 24th May, 1949. Salary £350 p.a., with full residential emoluments. Appointment for an initial period of 1 year. Suitably qualified R practitioners holding B2 posts, also those holding B1 and ineligible for H.M. Forces, invited to apply.

Applications, stating age, qualifications with dates, nationality, present post, with copies of 3 recent testimonials, should be sent immediately to the Administrative Officer, Royal Berkshire Hospital, Reading.

READING. ROYAL BERKSHIRE HOSPITAL. (383 Beds.) READING AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (A), Male, post vacant 25th May, 1949. Salary £200 p.a., with full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioners liable for service with H.M. Forces, appointment for 6 months.

Applications, stating age, qualifications with dates, nationality, present post, with copies of 3 recent testimonials, should be sent immediately to the Administrative Officer, Royal Berkshire Hospital, Reading.

READING. BATTLE HOSPITAL. (429 Beds.) Reading and DISTRICT HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE PHYSICIAN (A), Male. Duties include responsibility for chronic sick as well as acute sick, and there is also some anæsthetic work with tuition in this subject. The visiting staff at Battle Hospital is the same as at the Royal Berkshire Hospital, and clinical experience is also available at the latter hospital. Salary £250 p.a., with full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioners liable for service with H.M. Forces appointment for 6 months.

Applications, stating age, qualifications with dates, nationality, present post, with copies of 3 recent testimonials, should be sent immediately to the Administrative Officer, Royal Berkshire Hospital.

ROMFORD. OLDCHURCH HOSPITAL. (786 Beds.) Applications invited for appointment of JUNIOR MEDICAL OFFICER (B2) for casualty duties at above Hospital. Salary provisionally at rate of £472 10s. a year, rising by £25 annually to £650 a year, plus cost-of-living bonus, with residential emoluments valued £160 a year, pending the implementation of the recommendations of the Spens report. Appointment subject to provisions of the appropriate superannuation scheme and to passing a medical examination.

Applications, stating age, qualifications, present appointment, and experience, to be sent with names of 2 referees, to the Secretary, Romford Group Hospital Management Committee, Oldchurch Hospital, Romford, by 30th April, 1949.

ROTHERHAM. DONCASTER GATE GENERAL HOSPITAL. Required, RESIDENT HOUSE SURGEON AND SECOND CASUALTY OFFICER (A) at above Hospital. Commencing salary £280 p.a., with residential emoluments valued at £110 p.a., a total of £390 p.a., for superannuation purposes. Appointment subject to National Health Service (Superannuation) Regulations, 1947/48, and to medical examination. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment limited to 6 months.

Applications, stating age, qualifications, experience, and nationality, with names of 3 referees, to be addressed to the Secretary, Rotherham and Mexborough Hospital Management Committee, Montagu Hospital, Mexborough, Yorkshire, as soon as possible.

SALFORD. HOPE HOSPITAL. (1000 Beds.) Salford Hospital MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (A) or (B2), post now vacant. The duties include supervision of Orthopædic, E.N.T. and Children's Surgical Wards, and there are opportunities for gaining experience in other branches of medical work. Salary £230 p.a. or £280 p.a., according to experience, plus full residential emoluments.

Applications, stating age, qualifications, and experience, with the names of 3 referees, should be submitted as soon as possible to the Medical Superintendent, Hope Hospital, Salford, 6.

SALISBURY GENERAL INFIRMARY. Required, Resident House SURGEON (A) or (B2). Appointment for 6 months. Salary for A post £200, or B2 post £250 p.a., with full residential emoluments. R practitioners holding A post may apply. Duties to commence early in May.

Applications should be sent to the Secretary, Salisbury Group Hospital Management Committee, General Infirmary, Salisbury.

SCOTLAND. SOUTH-EASTERN REGIONAL HOSPITAL BOARD. EDINBURGH NORTHERN HOSPITALS BOARD OF MANAGEMENT. RESIDENT ANÆSTHETIST required from 1st May, 1949, to work within the Northern Group of Hospitals, Edinburgh. This post is suitable for either A or B2 practitioners and is for a period of 6 months. Salary being at the rate of £120 A, and £200 B2, p.a., with full residential emoluments.

Applications to be sent to the Medical Superintendent, Northern Group of Hospitals, Western General Hospital, Edinburgh, 4.

SCUNTHORPE AND DISTRICT WAR MEMORIAL HOSPITAL, SCUNTHORPE HOSPITAL MANAGEMENT COMMITTEE. Required, CASUALTY OFFICER (B1), post now vacant. Salary £300 p.a., with full residential emoluments. Appointment, which is resident, will be for 6 months in the first instance. Applications from practitioners holding B1 appointments cannot be considered unless they are ineligible for H.M. Forces.

Applications, with copies of testimonials, should be forwarded immediately to Secretary, Scunthorpe and District War Memorial Hospital, Scunthorpe, Lincs.

SEDGEFIELD GENERAL HOSPITAL. Required, Orthopædic HOUSE SURGEON AND CASUALTY OFFICER (B2) at above Hospital which is an orthopædic centre and is situated in the country within easy reach of 3 main towns. Salary £250–£450 p.a., according to experience, plus full residential emoluments. R practitioners holding A posts cannot be considered unless ineligible for H.M. Forces.

Applications to be sent to L. WATSON, Secretary, Sedgefield Hospital Management Committee, General Hospital, Sedgefield, Stockton-on-Tees.

SHEFFIELD. THE JESSOP HOSPITAL FOR WOMEN. United SHEFFIELD HOSPITALS. Applications invited for post of RESIDENT PÆDIATRICIAN, vacant 1st June, 1949, and tenable for 1 year. Previous pædiatric experience essential. The post is associated with the Department of Child Health in the University of Sheffield. Appointee will be required to attend 1 outpatient session per week at Sheffield Children's Hospital. Salary (interim) £350 p.a., with board, residence, &c., to be adjusted to Grade 3 or Grade 2 according to experience.

Applications, with copies of 3 testimonials, to be lodged with undersigned immediately. DAVID OSWALD, Superintendent.

SHEFFIELD. ROYAL HOSPITAL UNIT. Applications invited from registered medical practitioners, Male or Female, including Medical Officers recently demobilised from H.M. Forces, for post of RESIDENT CLINICAL ASSISTANT (B1) for anæsthetics. Post is provisionally classed as Registrar Grade 2. Candidates must have held house appointments and had experience in anæsthetics. Salary £350 p.a. Applications from practitioners holding B1 posts cannot be considered unless ineligible for H.M. Forces.

Applications to be forwarded immediately to—
JOSEPH GRIFFITH, Esq., Chief Administrative Officer,
The United Sheffield Hospitals,
Central Office, Royal Hospital, West-street, Sheffield, 1.

SHREWSBURY. SHELTON HOSPITAL. Shrewsbury Hospital MANAGEMENT COMMITTEE, GROUP 15. Required, 2 HOUSE PHYSICIANS (B2) for 6 months. Opportunity for experience in all branches of psychiatry and psychoneurosis. Salary, which is at present £300 p.a., with full residential emoluments, is subject to revision when the Spens report is implemented. R practitioners holding A posts may apply.

Applications should be addressed to the Medical Superintendent, Shelton Hospital, Shrewsbury, and should be received before 23rd April. J. P. MALLETT, Secretary.

Royal Salop Infirmary, Shrewsbury.

SHREWSBURY. EYE, EAR, AND THROAT HOSPITAL FOR SHROPSHIRE AND WALES. SHREWSBURY HOSPITAL MANAGEMENT COMMITTEE (GROUP 15). Required, HOUSE SURGEON (B1), Male or Female, in the E.N.T. Department of this Hospital. The Hospital is recognised for the D.O.M.S. and D.L.O. R.C.S. Salary £320 p.a., with full residential emoluments.

Applications, stating age, qualifications, nationality, with copies of recent testimonials, should be sent to—
J. P. MALLETT, Secretary.

Royal Salop Infirmary, Shrewsbury, 5th April, 1949.

STAMFORD AND RUTLAND HOSPITAL. (105 Beds.) Required, HOUSE SURGEON (B2), post now vacant for 6 months in the first instance. Salary £300 p.a., with full residential emoluments.

Applications, with full particulars, should be sent as soon as possible to the Secretary, Stamford and Rutland Hospital, Stamford, Lincs.

STAMFORD, RUTLAND, AND GENERAL INFIRMARY. Required, CASUALTY OFFICER AND HOUSE PHYSICIAN (A), Male or Female, post now vacant. Salary £200 p.a., full residential emoluments.

Applications, stating age, qualifications with dates, nationality, with copies of 3 recent testimonials, should be sent to the Secretary, The Infirmary, Stamford.

SOUTHAMPTON INFECTIOUS DISEASES HOSPITAL AND SANATORIUM, SOUTHAMPTON. SOUTHAMPTON GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, JUNIOR RESIDENT MEDICAL OFFICER (A) or (B2), Male or Female. Salary £270 p.a., plus full residential emoluments. Appointment for 6 months in the first instance.

Applications, with copies of references, should be submitted as soon as possible to the Secretary, c/o Royal South Hants and Southampton Hospital, Southampton.

SOUTHAMPTON. ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL. (290 Beds.) Required, RESIDENT or NON-RESIDENT ANÆSTHETIST (B1). The post is suitable for practitioners who have recently acquired, or are reading for, the D.A. Salary £550 p.a., resident, plus £150 p.a. if non-resident. Appointment for 6 months in the first instance.

Applications, stating age, qualifications, and experience, with copies of recent testimonials, should be submitted as soon as possible to the Secretary, Southampton Group Hospital Management Committee, c/o Royal South Hants and Southampton Hospital, Southampton.

SOUTHAMPTON. ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL. (290 Beds.) Required, RESIDENT MEDICAL AND SURGICAL OFFICER (B1), Male or Female, post now vacant, at the Hospital's Annexe at Romsey (75 Beds). Salary £350 p.a., full residential emoluments. Appointment for 6 months in the first instance.

Applications, with full particulars and copies of testimonials, to be forwarded forthwith to FRANK JENNINGS, Secretary, Southampton Group Hospital Management Committee.

STAFFORD HOSPITAL MANAGEMENT COMMITTEE. Applications invited from duly qualified candidates, who should have had experience in the diagnosis and treatment of tuberculosis, for post of ASSISTANT TUBERCULOSIS OFFICER for the area of Mid-Staffordshire. Appointee will be based on Stafford, and he will work in the main and sub-dispensaries of the area and carry out domiciliary visiting of patients as required, under the direction of the Tuberculosis Officer. Salary scale £750 p.a., rising by £50 p.a. to £1000 p.a.; the commencing salary will be fixed within this scale according to qualifications and experience. The National Health Service (Superannuation) Regulations, 1947, will apply to the post, and successful candidate required to undergo a medical examination.

Applications, giving particulars of age, qualifications, and experience, with copies of 1–3 recent testimonials, should be addressed to the Secretary, Stafford Hospital Management Committee, 13, Foregate-street, Stafford, to reach him as soon as possible. H. H. JONES, Secretary to the Committee.

STOCKPORT INFIRMARY. (167 Beds.) Stockport and Buxton HOSPITAL MANAGEMENT COMMITTEE. Applications invited from registered medical practitioners including practitioners within 3 months of qualification and liable under the National Service Acts, for post of HOUSE SURGEON (B2), E.N.T. and Eye, approved under D.L.O. and D.O.M.S. regulations. Post vacant 1st May, 1949. Salary £250 p.a., with full residential emoluments.

Applications, stating age, nationality, and qualifications with dates, with copies of 2 testimonials, to be sent to the Administrative Assistant, Stockport Infirmary, immediately.

H. G. PRICE, Secretary.

SOUTH WESTERN REGIONAL HOSPITAL BOARD. National BLOOD TRANSFUSION SERVICE. Applications invited from registered medical practitioners for post of SENIOR ASSISTANT MEDICAL OFFICER, with headquarters at Southmead Hospital, Bristol. The duties are both clinical and laboratory and appointee will be expected to act for the Regional Transfusion Officer in his absence. Appointment is whole time and the salary will be £750, by annual increments of £50 to maximum of £1000 p.a., subject to review when the Spens report is implemented or in the light of adjustments on a national basis. Successful candidate required to pass a medical examination and appointment is subject to National Health Service (Superannuation) Regulations, 1947/48, and to the terms and conditions of service subsequently agreed by the Ministry of Health. Applications from R practitioners holding B1 posts cannot be considered unless ineligible for H.M. Forces.

Applications, giving full particulars of age, qualifications, details of present and previous appointments with dates, with the names of 2 referees, should be addressed to the Regional Transfusion Officer, Southmead Hospital, Bristol, to be received by 30th April, 1949.

STORNOWAY. LEWIS HOSPITAL. Lewis and Harris Hospitals BOARD OF MANAGEMENT. Required, RESIDENT HOUSE PHYSICIAN (B1) at above Hospital, to commence duty as soon as possible. Salary £400 p.a., with full residential emoluments. Applicants should have held a previous appointment as House Physician. Practitioners holding B1 appointments cannot be considered if eligible for service in H.M. Forces.

Applications, with copies of 1–3 recent testimonials, should be sent immediately to IAN MACLEOD, Secretary, Lewis and Harris Hospitals Board of Management, Lewis Hospital, Stornoway.

ST. ALBANS. NAPSBURY MENTAL HOSPITAL. Trainees in Psychiatry. Applications invited for 2 posts of Locum Tenens ASSISTANT MEDICAL OFFICER at this progressive Hospital. 1 appointment will commence end of April, and 1 end of May. Preference given to applicants desirous of proceeding, on or soon after 4th July, 1949, to a Junior Registrar (Trainee Grade III) post in the same Hospital. Previous experience as H.P. or H.S. essential. Previous psychiatric experience desirable but not essential. Regular clinical case conferences. Good psychiatric library, and other training facilities. Locum tenens salary £11 1s. 6d. per week, plus full residential emoluments. No married quarters available.

Applications, with references or testimonials, should be sent as soon as possible to the Medical Superintendent, Napsbury Hospital, near St. Albans, Herts (Telephone No.: London Colney 2181).

STOURBRIDGE. THE CORBETT HOSPITAL. (106 Beds.) Required, HOUSE SURGEON (B2), post vacant now. Salary £300 p.a., plus full residential emoluments. Appointment for 6 months in the first instance. R practitioners holding A post may apply.

Applications, stating age, nationality, qualifications with dates, experience, and details of previous appointments, with copies of 3 recent testimonials, to H. RAYMOND HURST, Secretary, Dudley, Stourbridge and District Hospital Group, Birmingham Region, The Guest Hospital, Dudley.

STOURBRIDGE. WORDSLEY HOSPITAL, near Stourbridge. (440 Beds.) Required, JUNIOR MEDICAL OFFICER (B2), post vacant now. Salary £300–£350 p.a., according to experience, plus full residential emoluments. Appointment for 6 months in the first instance. R practitioners holding A post may apply.

Applications, stating age, nationality, qualifications with dates, experience, and details of previous appointments, with copies of 3 recent testimonials, to H. RAYMOND HURST, Secretary, Dudley, Stourbridge and District Hospital Group, Birmingham Region, The Guest Hospital, Dudley.

STOKE-ON-TRENT. CITY GENERAL HOSPITAL. Stoke-on-TRENT HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE PHYSICIAN (B2), Male or Female. The duties include work in the Outpatients' Department, as well as ward rounds with the Visiting Staff, and there is ample opportunity for experience in all branches of general medicine. Salary £250 within 1 year of qualification, £350 after 1 year of hospital experience. Appointment for 6 months in the first instance and commences 1st May.

Applications, stating age, qualifications with dates, and nationality, present post, with copies of 2 or more recent testimonials, should be sent to the Medical Superintendent of this Hospital.

STOKE-ON-TRENT. NORTH STAFFORDSHIRE ROYAL INFIRMARY. (475 Beds.) STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT ANÆSTHETIST (B2), Male or Female, post vacant 1st May. Salary within scale £250–£550 p.a., according to period of qualification, with full residential emoluments. To R practitioner appointment limited to 6 months. The appointment is recognised for the D.A.

Applications, with copy testimonials, to be forwarded as soon as possible, to the Secretary of the above Hospital.

SUNDERLAND AREA HOSPITAL MANAGEMENT COMMITTEE. Applications invited for following posts:—

Sunderland. Royal Infirmary (312 Beds), recognised for F.R.C.S.

REGISTRAR (B1) to the Department of Venereal Diseases. Successful candidate may be expected to assist in the V.D. work at the Sunderland General Hospital and at the Seamen's Clinic at the Docks. Salary £650 p.a., non-resident. Appointment for 6 months in the first instance, with the opportunity of further extending the period. Liberal opportunities for study will be allowed. Preference shown to candidates with previous experience in the specialty.

REGISTRAR (B1) to the Department of Physical Medicine. Salary £650, £700, £750 p.a., non-resident. Appointment renewable annually for 3 years. This is a large and progressive department and the medical staff are linked up with other hospitals in the area.

Applications from practitioners holding B1 posts cannot be considered unless ineligible for H.M. Forces.

Sunderland. General Hospital (451 Beds)

RESIDENT ANÆSTHETIST (B2), Male or Female. Salary £250–£350 p.a., according to qualifications and experience, with full residential emoluments. R practitioners holding A posts may apply when appointment will be limited to 6 months.

HOUSE SURGEON (A), Male, for general wards.

2 HOUSE SURGEONS (A), Male or Female, for the Obstetrical and Gynæcology Departments.

Salary in each case £200 p.a., with full residential emoluments. Male practitioners within 3 months of qualification eligible for military service may apply, when appointment will be limited to 6 months.

All posts now vacant and salaries subject to adjustment to future nationally revised rates.

Applications, stating age, nationality, qualifications, and experience, with copy testimonials, to F. DAGNALL, Secretary, Sunderland Area Hospital Management Committee, Royal Infirmary, Sunderland.

SWANSEA. MORRISTON HOSPITAL. (450 Beds.) Applications invited for RESIDENT HOUSE SURGEON (B2), Neurosurgical Unit. Salary £250 p.a., plus emoluments £100 p.a. R practitioners holding A posts may apply, when appointment will be limited to 6 months.

Applications, stating age, qualifications, and experience, to be sent to the Medical Superintendent, Morriston Hospital, Swansea, as soon as possible.

O. C. HOWELLS, Secretary,
Glantawe Hospital Management Committee.

TUNSTALL. STANFIELD SANATORIUM, Tunstall, Stoke-on-TRENT. STOKE-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT MEDICAL OFFICER at above Sanatorium. Candidates must be single. Previous institutional experience in tuberculosis will be an advantage. Salary within scale £250–£550 p.a., according to hospital experience, plus emoluments which will include board, lodging, laundry, and attendance. Salary will be reviewed in the light of any agreement on a national basis regarding revised rates of remuneration. Appointment for 1 year in the first place, and may be extended. The selected candidate will require to act under the immediate direction of the Tuberculosis Officer.

Further particulars may be obtained from the Medical Superintendent at the Sanatorium, to whom applications stating age, qualifications, and experience, should be addressed.

THORNBURROW GIBSON, Secretary.

TAUNTON AND SOMERSET HOSPITAL. (260 Beds—8 Residents.) Required, HOUSE PHYSICIAN to the Pædiatric Department. Salary £250 p.a., with full residential emoluments. The Hospital is recognised by the Royal College of Surgeons in connexion with the resident medical posts required of candidates for the Final Fellowship examination.

Applications to the Secretary, Taunton Hospital Management Committee, Taunton and Somerset Hospital, Taunton.

TRURO. ROYAL CORNWALL INFIRMARY. (280 Beds.) Required, SURGICAL REGISTRAR (B1). Salary £650, non-resident. Appointment for 1 year in the first instance and subject to review on the implementation of the Spens report. Applicants must have had surgical experience and should preferably either hold a higher surgical qualification or be working for one. Applications from practitioners holding B1 appointments not considered if eligible for H.M. Forces.

Applications, giving full particulars, and the names of 2 referees, or 2 references, and quoting reference no. 17, should be made to the Secretary, West Cornwall Hospital Management Committee, 4, St. Clement Vean, Truro, by 7th May, 1949.

WAKEFIELD. PINDERFIELDS GENERAL HOSPITAL. Hospital MANAGEMENT COMMITTEE NO. 10, WAKEFIELD B GROUP. Required, HOUSE PHYSICIAN (B2), Male or Female. Salary £350 p.a., in addition to full residential emoluments valued at £100 p.a. The Hospital accommodates acute medical and surgical patients, and in addition to a Thoracic Surgical Unit has an Orthopædic Centre. Applicants may include R practitioners holding A posts. To practitioner liable for service with H.M. Forces appointment for 6 months; otherwise not exceeding 1 year.

Applications, giving full particulars and the names and addresses of 2 persons to whom reference may be made, should be addressed as soon as possible to G. L. BANNER, Secretary.

Victoria Chambers, Wood-street, Wakefield, April, 1949.

WAKEFIELD, YORKSHIRE. CLAYTON HOSPITAL. Hospital MANAGEMENT COMMITTEE NO. 9 WAKEFIELD A GROUP. Applications invited from registered medical practitioners for appointments of HOUSE PHYSICIAN (A) and HOUSE SURGEON (A), resident. Posts for 6 months. Salary £200 p.a.

Applications are to be sent to W. READ, Secretary.

WALSALL MANOR HOSPITAL. (330 Beds.) **Applications** invited for post of RESIDENT ANÆSTHETIST. Salary £350 p.a., plus emoluments. The Hospital is an acute general hospital in an industrial area, and appointee will be expected to undertake relief duties, and work under the general supervision of the Medical Superintendent.

Applications, with copies of 2 testimonials, should be forwarded to the Medical Superintendent, as soon as possible.

WALSALL MANOR HOSPITAL. (330 Beds.) **Applications** invited for post of RESIDENT MEDICAL OFFICER. Salary £350 p.a., plus emoluments.

Applications, with full particulars, and copies of 2 testimonials, should be forwarded to the Medical Superintendent.

WEST BROMWICH AND DISTRICT HOSPITALS GROUP NO. 18. Applications invited from suitably qualified candidates for post of PÆDIATRIC REGISTRAR. Duties will include work in baby wards and in the nursery of an obstetric unit. Salary according to experience and qualifications; in the range between £650 and £950, non-resident.

Applications to be submitted to—

JOHN O. ROBINS, Secretary at the
West Bromwich and District General Hospital.

WESTON-SUPER-MARE GENERAL HOSPITAL. (107 Beds.) WESTON-SUPER-MARE HOSPITAL MANAGEMENT COMMITTEE. Required, CASUALTY OFFICER (A), involving duties of Resident Anæsthetist. Duties to commence immediately. Salary £200 p.a., with full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered. To practitioner liable for service with H.M. Forces appointment for 6 months.

Applications, stating age, qualifications with dates, and nationality, with copies of 3 recent testimonials, should be addressed to LEWIS B. HULL, Secretary.

WEYMOUTH AND DISTRICT HOSPITAL. (130 Beds.) **House** SURGEON (B2), Male, required. Salary £300 p.a., plus full residential emoluments. Appointment for 6 months in the first instance.

Applications, giving age, experience, and nationality, with copies of testimonials, to reach the Secretary, West Dorset Group Hospital Management Committee, Dorchester, Dorset, immediately.

WORKINGTON INFIRMARY, Workington. Required, House PHYSICIAN (A) or (B2) with anæsthetic duties. The staffing of the Infirmary is on a purely specialist basis. Salary will be according to postgraduate experience on the scale £280 in the first year after qualification, rising to £380, £430, and £480 p.a. in the 2nd, 3rd, and 4th year, with full residential emoluments. Applicants returning from the Forces will be welcomed. Appointment for 6 months in the first instance.

Applications, with copies of 2 recent testimonials, should be sent to the Secretary, West Cumberland Hospital Management Committee, 17–19, Falcon-street, Workington, Cumberland, as soon as possible.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY. WOLVERHAMPTON LOCAL MANAGEMENT COMMITTEE, NO. 16 GROUP. Required, HOUSE SURGEON (B2), Male or Female. Appointment for 6 months and will be available 16th April, 1949. Salary £200 p.a., with full residential emoluments. The Infirmary, which has 95 Beds and a large Outpatient Department, is recognised as a hospital at which the full course of instruction for admission to the D.O.M.S. may be taken.

Applications should reach undersigned as soon as possible.

T. W. LYMER, Secretary-Superintendent.

WOLVERHAMPTON. THE ROYAL HOSPITAL, Wolverhampton HOSPITAL MANAGEMENT COMMITTEE, GROUP NO. 16, BIRMINGHAM REGION. Required, CASUALTY OFFICER (B2), post vacant now. Salary £350 p.a., with full residential emoluments, subject to adjustment on implementation of the Spens report. R practitioners holding A post may apply, when appointment will be limited to 6 months.

Applications to W. COCKBURN, House Governor.

WOLVERHAMPTON. THE ROYAL HOSPITAL, Wolverhampton HOSPITAL MANAGEMENT COMMITTEE, GROUP NO. 16, BIRMINGHAM REGION. Required, JUNIOR RESIDENT ANÆSTHETIST (A), post vacant now. Salary £200 p.a., with full residential emoluments, subject to adjustment on implementation of the Spens report. To R practitioner appointment limited to 6 months.

Applications to W. COCKBURN, House Governor.

WOLVERHAMPTON. THE ROYAL HOSPITAL, Wolverhampton HOSPITAL MANAGEMENT COMMITTEE, GROUP NO. 16, BIRMINGHAM REGION. Required, HOUSE SURGEON (B1), Fracture and Orthopædic Department, post vacant now. Salary £350 p.a., subject to adjustment on implementation of the Spens report. Applicants should have held house appointments and had surgical experience. Suitably qualified R practitioners holding B2 appointment, also those holding B1 and ineligible for H.M. Forces are invited to apply.

Applications to W. COCKBURN, House Governor.

WINDSOR. KING EDWARD VII HOSPITAL. Windsor Group HOSPITAL MANAGEMENT COMMITTEE. Required, HOUSE SURGEON (A), Male or Female, post vacant now and tenable for 6 months. Salary £200 p.a., with full residential emoluments.

Applications, with copies of testimonials, stating age, qualifications with dates, and nationality, should be sent as soon as possible to the Administrative Officer at the above address.

WINWICK MENTAL HOSPITAL, Winwick, Warrington. Required, HOUSE PHYSICIAN (B2), Male or Female, for 6 months in the first instance. Salary at present £350 p.a., full residential emoluments.

Applications to be sent to the Medical Superintendent as soon as possible.

WREXHAM EMERGENCY (COUNTY GENERAL) HOSPITAL. (225 Beds.) 2 HOUSE PHYSICIANS required. Salary £300 p.a., by 1 increment of £50 to maximum of £350 p.a., after 6 months' satisfactory service, plus temporary cost-of-living bonus, with full residential emoluments. Successful applicants to commence immediately. Practitioners within 3 months of qualification and liable for service under the National Service Acts may apply when appointments will be for 6 months; otherwise not exceeding 12 months.

Applications, and copies of recent testimonials, to be sent to the Secretary, Wrexham Hospital Management Committee, Emergency Hospital, Wrexham, Denbighshire.

WREXHAM AND EAST DENBIGHSHIRE WAR MEMORIAL HOSPITAL. (170 Beds.) Required, RESIDENT HOUSE SURGEON (A), Male or Female, for 6 months commencing immediately. Salary £300 p.a., with full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications, stating age, nationality, qualifications, with copies of testimonials, to Mr. WILLIAM JONES, Secretary, Wrexham Hospital Management Committee, Emergency Hospital, Wrexham.

YORK COUNTY HOSPITAL. (268 Beds.) **Required, Second** HOUSE SURGEON (A), Male or Female, post now vacant. This post is recognised for the F.R.C.S., and appointment will be for 6 months. Salary £175 p.a., with full residential emoluments. R practitioners, ineligible for H.M. Forces or under 25½ years not having held an A post, considered.

Applications should be sent to the General Superintendent, County Hospital, York, immediately.

F. A. MILNES, Secretary to
York A and Tadcaster Hospital Management Committee.

Public Appointments

COMMONWEALTH OF AUSTRALIA. Department of Health. Applications invited for the position of SENIOR MEDICAL OFFICER, Grade 3, Epidemiologist. Appointee will act as adviser on epidemiological problems to the Director-General of Health. He will be stationed at the School of Public Health and Tropical Medicine at the University of Sydney and will hold the position of lecturer on Epidemiology for the Diplomas of Public Health and Tropical Medicine. Salary £1750–£1938 p.a. (Australian currency).

Completed applications, containing the names of 3 referees, should be forwarded to the Chief Medical Officer, Australia House, Strand, London, W.C.2, by 12th May, 1949.

FACTORY DOCTORS APPOINTED: Factories Acts, 1937 and 1948. The following appointments as Appointed Factory Doctor under the Factories Acts, 1937 and 1948, are vacant. Applications should be sent to the Chief Inspector of Factories, 8, St. James's-square, London, S.W.1.

District	*County*	*Latest date for receipt of application*
ELSTREE ..	HERTFORD ..	30TH APRIL, 1949
TORQUAY ..	DEVON ..	30TH APRIL, 1949

MAGHULL. MOSS SIDE HOSPITAL (for Mental Defectives), MAGHULL, near LIVERPOOL. TEMPORARY MEDICAL OFFICER now required. Salary scale £960–£1320. Unfurnished house available. Deduction for furnished quarters £70 p.a., board and laundry at 27s. 6d. per week. Psychiatric experience preferable. Hospital in process of development, now has 460 Beds, new wards, new and fully equipped occupational therapy workshops.

Applications to Medical Superintendent.

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ROYAL NAVAL MEDICAL SERVICE

1. Candidates are invited for service as Medical Officers in the Royal Navy—preferably below 28 years.

2. They must be British subjects whose parents are British subjects, be registered under the Medical Acts and be medically fit. No examination will be held but an interview will be required.

3. Initial entry will be for 4 years' short service, after which gratuity of £600 (tax free) is payable but permanent commissions are available for selected short service officers.

4. Ante dates of seniority up to 12 months may be given for service in recognised civil hospitals.

5. For full details apply MEDICAL DIRECTOR-GENERAL, ADMIRALTY, S.W.1.

GOVERNMENT OF IRAQ. Applications from qualified candidates are invited for the following posts:—

For the Public Health Department, mainly in the principal provincial cities: SPECIALISTS in E.N.T. Diseases, Internal Diseases, and Leprosy; PATHOLOGIST; BACTERIOLOGIST; OPHTHALMOLOGISTS; RADIOLOGISTS; MALARIOLOGISTS. Salary Iraq Dinars 1800 a year, and high cost-of-living allowance I.D. 288 a year (I.D. 1 = £1). Appointments will be on contract for 3 years in the first instance and renewable. Provident fund. Free first-class passages and liberal leave on full salary.

Also required are:—

CLINICAL PATHOLOGISTS, and SPECIALISTS in Nervous and Mental Diseases. Salary according to qualifications and experience (minimum salary I.D. 1440 a year), plus high cost-of-living allowance I.D. 288 a year. Other terms as above.

For the Royal Hospital and Medical College, Baghdad: PROFESSORS of Pathology, Pharmacology, E.N.T. Diseases; expert in Radiology (for both teaching and practical work). Salary I.D. 1800 a year, and high cost-of-living allowance I.D. 288 a year, with possibility of annual increments of I.D. 60. Other terms as above.

Also required are:—

ASSISTANT PROFESSORS of Physics and Chemistry, and Biology. Salary Iraq Dinars 1200 a year, plus high cost-of-living allowance I.D. 288 a year. Also TEACHER of Biology. Salary I.D. 720 a year, plus high cost-of-living allowance I.D. 180 a year (for single men) or I.D. 192 (for married men). Candidates must hold an honours degree and have had appropriate teaching experience. Other terms as above.

Private practice allowed in all cases. Candidates must be British subjects, hold specialist qualifications and have had several years specialist experience. In the case of the Royal Hospital and Medical College Staff, they must also have had previous teaching experience.

Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper to the Crown Agents for the Colonies, 4, Millbank, London, S.W.1, quoting M/SA/922/5/3F on both letter and envelope.

MINISTRY OF PENSIONS

Gateshead. Dunston Hill Hospital

A vacancy exists at above Hospital for a JUNIOR MEDICAL OFFICER (B2) for general duties. Salary on range £528–£580 p.a., on a non-resident basis. If board and lodging is provided in the Hospital a deduction of £100 p.a. will be made from salary. To R practitioner appointment will be limited to 6 months.

Llandaff, Cardiff. Rookwood Hospital

A vacancy for SURGICAL OFFICER (B1) exists in above Hospital. Rookwood is a general medical and surgical hospital with a corneo-plastic unit. Salary on range £590–£640 p.a., on a non-resident basis. If board and lodging is provided in the Hospital a deduction of £100 p.a., will be made from salary. Suitably qualified R practitioners holding B2 appointments also those holding B1 and ineligible for H.M. Forces are invited to apply.

Applications, stating date of birth, qualifications with dates, and nationality, with copies of 2 recent testimonials, should be addressed to the Secretary, Ministry of Pensions, Medical Services Division, Norcross, Blackpool, Lancs.

SUDAN GOVERNMENT (Ministry of Health) invites applications for posts of MEDICAL OFFICER (for service in the Sudan) from Male registered medical practitioners who have taken their full medical training in the United Kingdom. Terms offered are a short-term contract in the first place up to 6 years and a commencing salary on the scale £900, £975, £1065, £1155, £1245, £1350, £1500, according to age and experience. In addition a cost-of-living allowance of from £180–£390 p.a., according to the number of dependants is at present payable (£1 = £1 0s. 6d.). Candidates qualify for a bonus of 1 half year's salary at the end of a 6-year contract and for annual leave after the first tour of service. Free passage on appointment. Strict medical examination. There is at present no income-tax in the Sudan.

Further information and application forms may be obtained from Sudan Agent in London, Wellington House, Buckingham Gate, London, S.W.1. Please mark envelope "Medical Officer."

Miscellaneous

ST. HELIER HOSPITAL, Carshalton, Surrey. (862 Beds.) There are vacancies in the Nursing School of this Hospital. Students enter in January, April, July, October, of each year. The Hospital is a modern one within easy reach of both London and the beauty spots of Surrey. The "block" system of training has been in operation since the opening of the Hospital which is also recognised by the Central Midwives Board as a Part I Training School. Student Nurses are paid a training allowance of £200 for the first year, £210 for the second year plus £5 bonus after passing the Preliminary State Examination, and £225 for the third year. Of this £100 will be payable to the St. Helier Hospital for board and lodging. They will receive medical attention and the use of uniform.

Forms of application and further particulars may be obtained from Matron, who will be pleased to arrange interviews with girls who are interested and their parents.

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Assistant Medical Officer, full-time, required at Metropolitan-Vickers Electrical Co. Ltd., Trafford Park, Manchester, 17. General practice and resident hospital, especially casualty, experience desirable. Salary up to £1000 p.a.—Apply immediately, with references, giving full particulars, to Senior Medical Officer, at above address.

Old-established company manufacturing large range of scientific medical products requires services of Medical Practitioner. The position is a full-time and permanent appointment and embraces the editing of professional literature, supervision of technical representatives at home and overseas, and provision of medical information service. Applicants should state age and full particulars of education and experience.—Apply to: Address, No. 263, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Doctor required immediately for British passenger liner (80 passengers), for 1 trip U.K./Australia, sailing mid-May.—Write: BOX Z.B.135, DEACON'S ADVERTISING, 36, Leadenhall-st., E.C.3.

Radiographers, Male, required by large industrial organisation for service in the Middle East. Large staff of British M.O.s and Sisters. Extensive X-ray services. Applicants should hold M.S.R. or first-class Service qualification such as Radiographer Class I R.A.M.C. Qualifications in physiotherapy and massage advantageous. Attractive salary plus generous allowance in local currency. Free passage out and home. Free medical attention. Kit allowance. Pension scheme. Good leave arrangements.—Write, stating age, qualifications, and experience, quoting Dept. F.109, to Box 1767 at 191, Gresham House, E.C.2.

Evans Medical Supplies Ltd. invite applications from registered medical practitioners or chemists having a diploma in bacteriology for the post of Bacteriologist.—Applications, stating nationality, age, qualifications, and experience, should be addressed to the Medical Director, The Evans Biological Institute, Runcorn, Cheshire.

Dental Practices and Partnerships for Disposal. Finance can still be arranged for the purchase of dental practices and partnerships. Many vacancies for Assistants with and without view to Partnerships, Locums. Good salaries paid.—Write: A. SHAW, Medical and Dental Agent, Premier Buildings, 88, Church-street, Liverpool, 1.

Vacancies for Assistants, with and without view to Partnerships, Locums, Hospital Locums, Ship's Surgeon's appointments.—Write: A. SHAW, Medical Agent, Premier Buildings, 88, Church-street, Liverpool, 1.

Small West-End House completely furnished, of great charm and character. 5 bedrooms, &c., central heating. 48 years' lease, which allows medical practice, if required. For sale with furniture £10,000.—Address, No. 264, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

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Card-Index Cabinets for National Health Insurance. Single or multiple units.—Catalogue from D. MATTHEWS & SON, LTD., Office Furnishers, 14–16, Manchester-street, Liverpool.

Applicants for posts, requiring testimonials copied or duplicated should communicate with MANTON SECRETARIAL SERVICE LTD., 98, Victoria-street, S.W.1 (Phone: VICtoria 0141), who are specialists in this kind of work.

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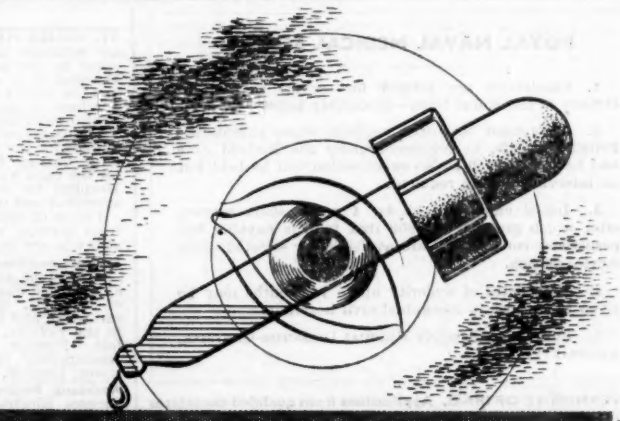

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